MOTOR AGE

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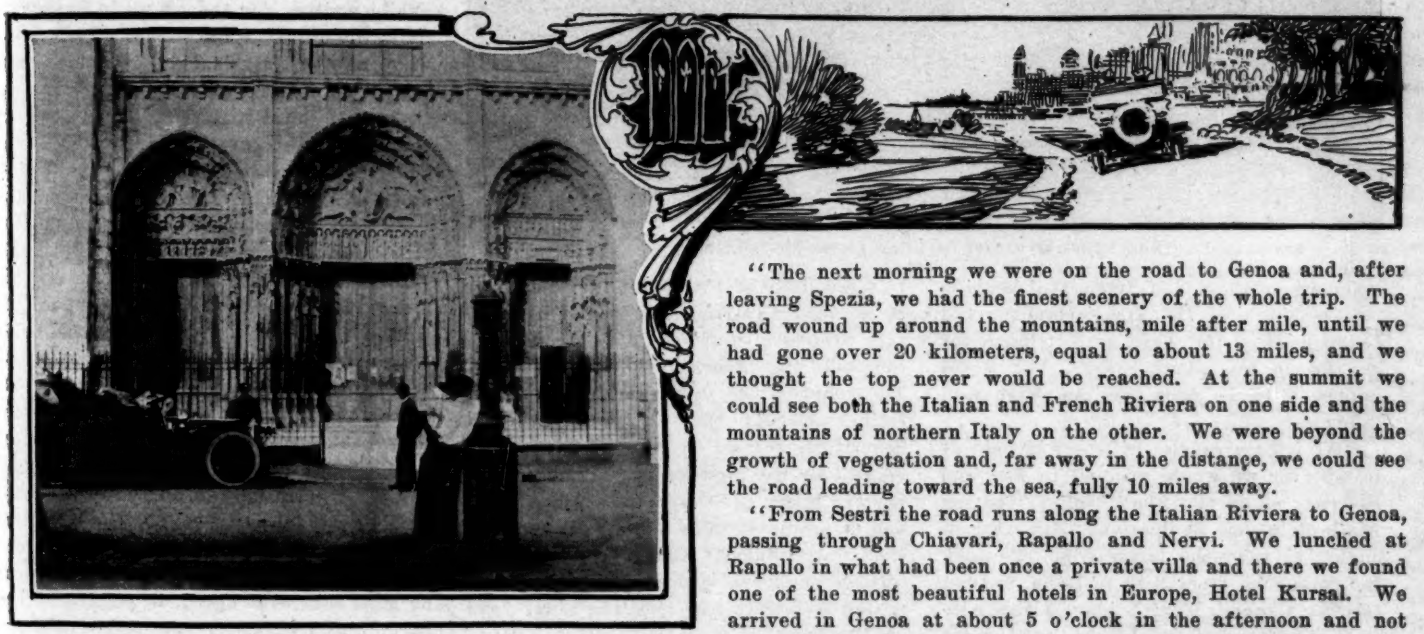
UNDER THREE FLAGS IN A TOURING AUTOMOBILE



TOURISTS STOP TO STUDY OLD CATHEDRAL

H. D. COREY, the Boston motorist whose adventures on a trip from Naples to Cologne were partially described in a recent issue of MOTOR AGE which carried him as far as Pisa, resumes his journey this week, describing the last stages of the trip to Boulogne, France, as follows:

"From Pisa we got along fairly well to Viareggio, then our troubles began. From Pietransanta to Sarzana, a distance of nearly 30 miles, the road lies through the marble country of Italy, Carara being its headquarters. All through Italy we had seen the beautiful white oxen which are used more than horses for teaming, but in this locality they were used exclusively for hauling the tremendous blocks of marble from the quarries.

"There is only one road leading along the shore and it consists of simply two ruts made by the heavy teams. Once you are in with a motor car, you are there to stay. The roads were heavy from recent rains and we had to plod along on the second speed until we caught up with one of the ox-carts. Then, by the judicious expenditure of a few centimes, we could persuade the driver to pull out on one side, which would leave us free to go ahead. The ruts were 4 to 5 inches deep and when you were in it was impossible to get out without breaking your steering gear.

"We toiled along for about 15 miles and the prospect looked pretty dubious until we got to Sarzana, where we found a good road leading to Spezia. This is a beautiful city situated on the Gulf of Spezia, with lovely gardens in front of the hotels, and the headquarters of a regimental corps. We had a fine time at the Grand Hotel Royal Cross di Malta that night, as there were about 100 Italian army officers having their annual dinner and the proprietor provided us a convenient table so we could watch the fun.

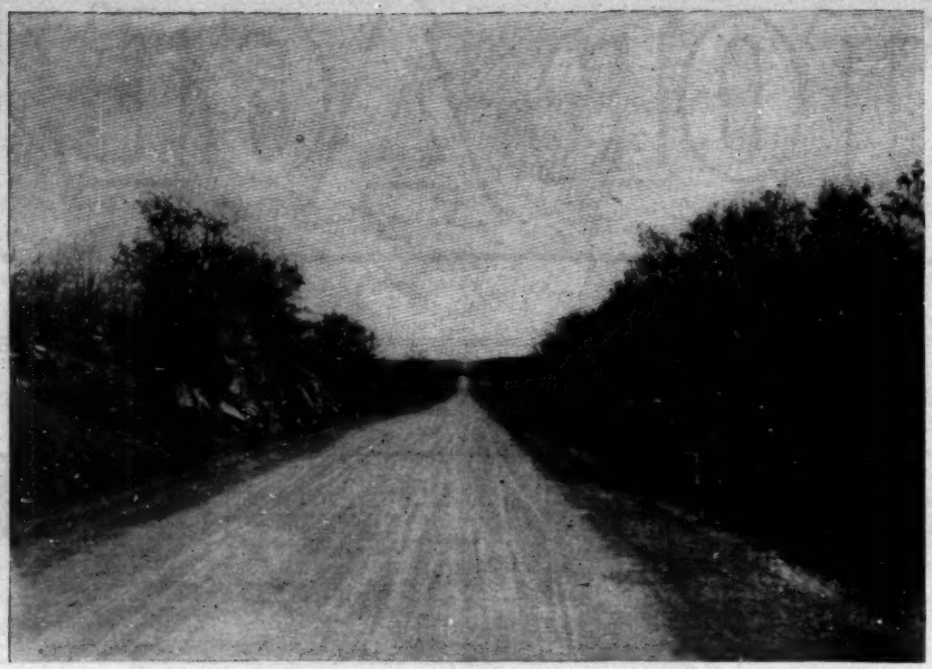
"The next morning we were on the road to Genoa and, after leaving Spezia, we had the finest scenery of the whole trip. The road wound up around the mountains, mile after mile, until we had gone over 20 kilometers, equal to about 13 miles, and we thought the top never would be reached. At the summit we could see both the Italian and French Riviera on one side and the mountains of northern Italy on the other. We were beyond the growth of vegetation and, far away in the distance, we could see the road leading toward the sea, fully 10 miles away.

"From Sestri the road runs along the Italian Riviera to Genoa, passing through Chiavari, Rapallo and Nervi. We lunched at Rapallo in what had been once a private villa and there we found one of the most beautiful hotels in Europe, Hotel Kursal. We arrived in Genoa at about 5 o'clock in the afternoon and not wishing to stay over night, we filled up with gasoline and went on to Pegli, where we spent the night at the hotel formerly occupied by Emperor Frederick of Germany.

"The next morning we visited the Villa Pallavicini, which well repaid a visit. The grounds were heavy with vegetation and offered magnificent views. The castle, in the mediaeval style with a tower, stands on the highest point. From the stalactite grotto, with a subterranean piece of water under the bridge, a striking glimpse of the lighthouse of Genoa and the sea is obtained.

"We found few good hotels along the Italian Riviera until we reached Alassio, so we continued our journey from Pegli to Savona, Noli, Albenga and arrived at Noli about 3 p. m. Anyone who has been through this part of Italy on a train, with ninety tunnels between Genoa and Nice, can imagine what it must be in a motor car, winding in and out on the shore road. In the after-

OVER THE MOUNTAINS FROM VILLEFRANCH TO NIMES



BEAUTIFUL STRETCH OF ROAD FROM AIX TO NICE

noon we drove to San Remo, still keeping on the shore of the Mediterranean, and found most of the large hotels closed, for the season was about over. The Royal happened to be open and we were well taken care of.

"At Nice a council of war was held as to whether we would go over to Pau and Biarrittz or up the Rhone valley, visiting Aix-le-Bain and Switzerland, and we concluded to take the latter trip. We took the main road from Nice to Paris, passing through Cannes, Muy, Brignoles and Aix-en-Provence, where we lunched, and met a young chap from Philadelphia who had been with his car in Algiers and had just arrived in Marseilles that morning. After leaving Aix, the road ran along the railroad for about 10 miles, very level and smooth. We continued on through Orgon, arriving at Avignon about 4 p. m. This city is the capital of the department of Vaucluse and the seat of an archbishopric. It is built on the left bank of the Rhone, above which rises a rock crowned by the ancient palaces of the popes and the cathedral. These buildings overlooking the town and the old fortifications surrounding them, give a marked and picturesque appearance; but with a few exceptions the streets are narrow and tortuous and badly paved. Avignon owes its main interest to the fact that from 1309 to 1377 it was the residence of the popes, seven of whom, from Clement V to Gregory XI, reigned here, the latter transferring his seat to Rome in 1377. The side walls are handsome and remarkably well preserved and the former palace of the popes is now used as a soldiers' barrack.

"Wishing to cover as much ground as possible, we continued on to Orange, where we stopped at the Hotel De la Poste. So far on our trip, we had been loafing along the road, taking our time and not doing over 125 to 150 miles a day; but, wishing to see a little of Switzerland before going to the chateau district, we found it necessary to hurry; so after leaving Orange, we followed the Rhone valley to Valence. The country was rather flat and uninteresting, although the roads were fine and beautifully shaded by rows of tall poplar trees. As we approached Chambery the scenery began to change and Swiss chalets and mountain streams became very numerous. Arriving at Chambery, we drove through the main square, past the fountain of the elephants and took the lower road on the shore of Lake Bourget to Aix-les-Bains, where we stayed the night at Hotel de l'Europe. Aix was just filling up with visitors and is well worth seeing on account of its Kursal and the many places of interest in its vicinity.

"We were up early the next morning and ran back to Chambery and on to Montmelian. From there the road leads to Albertville along the bank of the river and

PICTURESQUE AVIGNON

we ran for nearly 20 miles up the valley at a high rate of speed. At Flumet we were stopped by the custom house officials but as we were in France and had not reached the Swiss border, we were somewhat puzzled by their action, but found, after conversing a few moments, that we were in what is called a neutral zone and that anyone passing the frontier had to have a permit to reënter France. Things began to look a little dubious, for, although my chauffeur had a license to drive in France, Switzerland was rather another matter. However, I presented my custom house papers, which were scrutinized closely, and finally they decided we could continue. While waiting for the officer in charge to finish his dinner, we attended a Swiss wedding at the principal hotel, which was rather a novelty in its way. We were invited to enter and found about twenty couples dancing around the room. The men had both arms around the girls' waists and the girls had both arms around the men's necks and they spun around like tops. After the ceremony, the bridal party formed a procession to take a 4-mile walk before the wedding feast and one of the women of my party presented the bride with a gold piece. This broke up the procession, for the bridal guests wished to examine it and it was some time before they could again form in line. A short time afterward, when we had received permission to continue on our way, we overtook the bridal party and, as the road was steep and winding, we had to keep our horn going every minute and to drive at as high a rate of speed as possible. The party scattered as we approached and the bride crouched up against the side of a boulder to get out of our way, while the groom started on the dead run up the road. It was so ridiculous I could hardly hold the steering wheel and we thought they were entitled to the money that had been presented to them.

"We now began to see snow-covered mountains, occasionally catching sight of Mont Blanc in the distance. A short distance further on, we left the mountain pass and came out on a broad tableland overlooking a beautiful valley. With Sallanches at one end and Lafayette at the other, the view was most magnificent. On the other side, in the far distance, we could see the road cut into the side of the rocks, leading toward Chamonix. We descended the valley, winding around the hills, and then took the road that led through the pass. We arrived at Chamonix about 3 p. m. and had a bite to eat, as we wanted to get back to Geneva that night. From the hotel we had a magnificent view of Mont Blanc, as it happened to be a very clear day, and it well repaid us for our journey down the valley.

"The road from Chamonix to Geneva, a distance of a little over 60 miles, is mostly downhill and we were able to coast a good part of the way. At Annemasse we were confronted by the Swiss custom house of-

ficials but had very little difficulty and we rolled up to the Hotel Bau Rivage well satisfied with our trip. We had seen just enough of Switzerland to create a longing to visit it again, which we hope to do some other year.

"We left Geneva the next morning and it seemed as if we never would lose sight of the city. The road wound around the mountains and, although we covered many miles of riding, it appeared to us that we never got very far from Geneva; and it was nearly noon before we crossed the last range and saw the beautiful Rhone valley spread out before us. We arrived at the Hotel de France, in Bourg, and after our luncheon visited the church of Brou, celebrated in Matthew Arnold's poem. In front of the portal of this church on the ground is traced an oval sun-dial on which, by placing himself over the date of the current month, the visitor may see the hour marked by his shadow. Just before leaving the hotel, we heard the 'tuff, tuff' of a one-cylinder car and immediately afterward a small automobile drew up to the door, filled with six people. The owner, who was driving, was dressed in a heavy fur coat which he immediately removed, showing a very light colored suit with knickerbockers and stockings of big red and black squares like a checkerboard. The whole party was dressed in a most extravagant style, with fur coats, mufflers, etc., and the day was so hot we hardly wanted to go out in the sun. Evidently the owner thought he was of considerable importance, as he wished our machine taken out of the garage and his own put in its place. As we had paid our bill, the now less obsequious landlord fell in with his views, but we didn't see it in exactly the same light, as we were not quite ready. The owner became a little impatient, whereupon I thought I would try a little American bluff and, after whispering to my chauffeur, he went up to the landlord and told him quietly that we were the Vanderbilts, of New York. Immediately the women of the Frenchman's party ran into the hotel to see what the women of our party had on and both the owner and the landlord were soon bowing to the ground. In a few moments we were ready and moved off under the most polite bows of the whole party—and it took us some time to convince ourselves that we were not the 'real article.'

"We continued on through Macon and Charolles to Digoin, on the banks of the Loire. We followed the river to Bourbon-Lancy and then went across country to Moulins, with 180 miles to our credit that day. At the Hotel de Paris, where we arrived that Sunday night, we found a fashionable wedding in progress.

"During this ride we had occasionally caught a glimpse of a chateau in the distance, especially around Macon, which is celebrated for its red wine; but, on leaving Moulins the next morning, we began to see chateaux right and left. We had been

SEEN PASSING THROUGH FRANCE

driving so hard during the last 3 or 4 days that our batteries needed re-charging, but my chauffeur was the most resourceful chap I ever met and the ways and means he used in making the accumulators do the work startled us.

"Very soon we began to notice the beautiful shades of the clover blossoms along the road and it seemed as if we were running through a magnificent garden. The roads were straight but a little undulating and the way we rushed up and downhill was a caution. We arrived at Tours about 5 in the afternoon and after visiting the beautiful cathedral and one or two other points of interest, we took the right bank of the Loire and arrived at the Grand hotel in Blois at 7 p. m. with 210 miles to our credit after the day's journey. This hotel was the busiest place we had seen for some time and there were nearly a dozen motor cars in the hotel garage.

"After visiting the castle and other points of interest at Blois, we drove to Orleans for luncheon and then to Chartres. The distance from Orleans to Chartres is 46 miles, which we made in an hour and a half. The roads are straight and smooth and in spite of the high rate of speed, the women napped most of the way.

"The beautiful stained glass windows and many other points of interest in the cathedral at Chartres occupied our attention for some little time and as the king of Spain was then in Paris, we thought it advisable to spend the night at Versailles, where we put up at Hotel Resivoir. During the last 5 days we had driven 900 miles, or an average of 180 miles per day.

"We ran to Paris the next morning and found the city full of visitors, with standing room only in about every hotel, but managed to get accommodations over night. However, we sighed for the country, and the next morning were on our way to Boulogne. Paris is the worst city to get out of in a motor car I have ever visited, and we bumped over the pavements to St. Germain and then took the road to Pontoise and Beauvais, where we had luncheon and visited the beautiful old cathedral. In the afternoon we continued on through Paix to Abbeville, where we took tea, and at half past 6 we were at the Grand hotel, at Boulogne, where we met a lot of friends who were sailing on the morrow.

"Throughout the drive of over 2,300 miles, the engine of my Napier never missed an explosion and our racing Michelin tires never had a puncture. It was with great regret that we saw Glenworth sailing out of the harbor with the Napier the next day, bound for Folkstone, and an hour later we were on the Moltke sailing for home, after a most pleasant trip."

HOMEWARD BOUND ON THE MOLTKE

MOTOR AGE

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NOT BADLY OFF

MOTOR car owners of New Jersey are not so badly off with the new Frelinghuysen bill, just passed by the legislature and sent to the governor, as they may suppose—that is, providing, of course, the bill is signed by the chief executive. While MOTOR AGE does not believe any licensing scheme is valid so long as only automobilists are taxed and the users of horse-drawn vehicles are permitted to do as they please, the Jersey licensing scheme is not severe, being as liberal in the matter of speed as is consistent with good policy at this stage of the automobile game. The bill, however, is eminently unfair in many respects. It gives the horse owner a distinct advantage over the automobilist if the former is disposed to be ugly; it places the motorist at a disadvantage in the police court, and it is inconsistent in the matter of taxation for licensing. The non-resident is discriminated against and will be apt to shun New Jersey's roads. The one good thing about the bill is that the fines collected for infractions of the law go toward road maintenance, which is as it should be. There is little doubt the bill will become a law, but it is not a law yet.

EDUCATE THE FARMER

THERE is an apparent awakening in many parts of the country over the good roads question, and it is not altogether on the part of the automobilists. There could be no better sign; it shows that people other than automobilists see the need of good roads. Iowa commercial clubs and agricultural societies are offering prizes for best half-mile stretches of roads, congressmen are being implored to pay some attention to the needs of the country in the matter of highways, and there are other evidences of an awakening interest. This ought to stir up all people who find use for the roads of the country—it ought to set them thinking and working. The farmer is the one who needs attention—he needs education. Only recently MOTOR AGE was informed of a letter written by a farmer who did not want good roads because good roads would compel him to shoe his horses more frequently, but he would be willing to submit if automobilists insisted upon having good roads—and paid for them. The farmer was not willing to help himself along but was kind enough to contribute new shoes for his horses once in a while. A farmer of this kind is the one who needs pity, not blame. He has not been educated and until he is educated he will not think in the right direction.

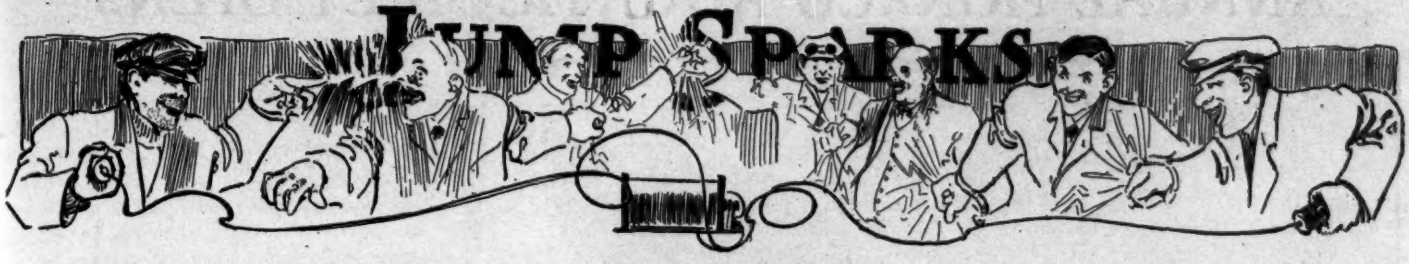
COMING CHANGES

EVERYTHING in automobile construction tends toward remarkable improvement. In some cases improvements are fraught with simplicity and with complication in others. There is a strong tendency, however, toward attaining the simplest forms in all directions on the part of most makers, who naturally see the demand for simplicity in operation and control. Not so very many weeks ago there was considerable comment over the story of a Napier car being driven in the neighborhood of a thousand miles without resorting to a single change in gears, the car being fitted with a six-cylinder motor, whose flexibility was responsible for its remarkable work. Now comes the announcement of the makers of the Napier that they are to build cars minus speed change gears, being satisfied that a six-cylinder motor has sufficient flexibility to perform the work usually assigned to numerous and different-sized gears. Another concern does away with the ordinary clutch, the speed of the motor serving to automatically change the gears. Nobody believes the motor car is anywhere near a state of perfection; in some respects it is far from it. But it must be remembered that the process of development has not been going on for years, as with the locomotive, and that in a remarkably short time the development attained has been something wonderful. The possibilities of the internal combustion motor are today almost unknown, though being learned rapidly, and so it is from this source that most of the improvements are apt to come. Engineering practice has seen few material changes in principle for years in ordinary lines, yet the automobile constructor has upset many a theory. Talk of doing away with clutches and speed change gears a few years or so ago would have been considered idle, but the improvements that are cropping up daily are such that no one need be astonished to find the present-day automobile a thing passe within the next very few years. Nobody disputes the fact that one-lever control is the most desirable thing in connection with the automobile, but those who have suggested this have been laughed at. Disposing of clutches, gearsets and other present-day necessities means a cheapening in the cost of production and a consequent increase in the output of each and every factory. In all probability it means a saving in power and consequently a lessening in the cost of operation, which, while not an item that is seriously considered today, must be taken into consideration at some date in the future. All this means more automobiles in use, a greater field for the manufacturer and the agent, and a thousand things good for any community that the use of the automobile is sure to bring. Therefore those who are striving toward simplicity in motor car construction are a long way from being on the wrong track.

J. DE MONT THOMPSON

GROWING APACE

FIGURES just at hand from eastern states show that the year 1906 not only is to be but is already remarkable for the growth in the popularity of the automobile, and while reports from other states are not at hand there is every evidence that the growth of motoring is phenomenal in all parts of the country and, for that matter, the world. The state of New York has already over 25,000 automobilists, New Jersey over 15,000, Massachusetts over 12,000. Estimate the number of automobiles in the other states and then approximate their value. It is enormous and only shows the remarkable progress that has developed within the past few years. It illustrates the prosperity of the country and the confidence the people have in the future of the automobile. The increase will make the automobile still more popular with all classes.



It was a horse on Taylor just the same.

There is one good thing about S. F. Edge—he keeps the other British makers on the guess at all times.

If Percy Megargel doesn't get home pretty soon he will be like the boy who played hookey to go fishing and had a lot of explaining to do about dinner time.

The only regret one has about Mr. Taylor taking French leave of the A. A. A. racing board is that he might have been able to secure a few cavalry brigades to patrol the Vanderbilt cup race course.

It is not uncommon for a motor car driver to brag of the ability of his car to do stunts on the road and of the stunts accomplished. The rub comes after the laudation has reached the ears of the police and the driver is landed before a magistrate.

At the tail end of a column article with a display head reading "Auto Victim Dies; Another Badly Hurt," a Chicago paper prints the following: "David Dyer, a barnman employed by Dr. William Cuthbertson, 171 Forty-seventh street, dropped dead early yesterday morning while cleaning an automobile in the physician's barn." Another time a chauffeur who was burned in a gasoline stove explosion received similar notoriety.

British war office decides to have owners of pleasure cars and motor cars register so machines can be used in case of war.

Frelinghuysen bill passes New Jersey assembly and is now up to governor for signing.

Inspector investigates sewer explosions in New York and declares gasoline not to blame.

Details of 1907 Mercedes decided on. New models to be fitted with chain cases.

Motor boat races held at Monaco; La Dellahaye wins championship of sea race.

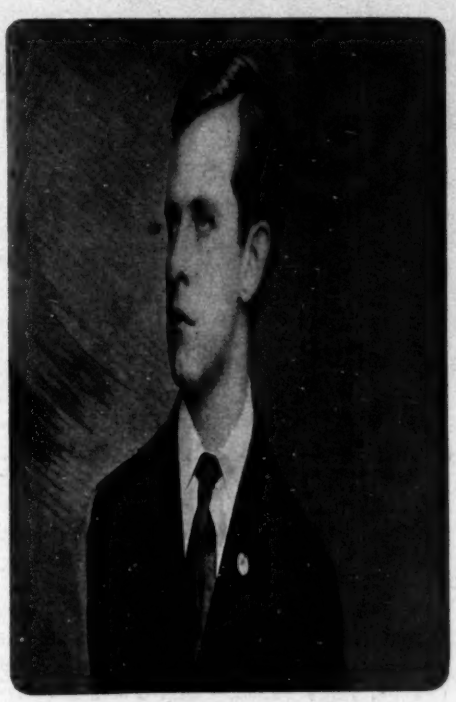
Automobile Club of France still waiting for official permit for Sarthe race.

Small inventors of France given chance to show their ideas to public.

Pope, Matheson and B. L. M. cars entered in Vanderbilt cup race.

Free alcohol bill passes house of representatives.

A MOTOR PHOTO CARTOON



SYDNEY S. GORHAM, SECRETARY A. A. A.

Jersey's taxation and licensing bill, commonly termed the Frelinghuysen measure, has stirred up as much trouble as a flock of Jersey skeeters with their bills.

The makers of the racing boat Fiat XIII ought to have known it would have come to some sort of grief; wonder is any salt water dog could have been found to step abroad the craft.

France has just held a show for small inventors of things pertaining to automobiles and automobilists. If the reports indicate anything it might have been termed a show for freaks.

In a bold editorial the New York Telegraph comes out squarely in behalf of automobilists, declaring the latter are a persecuted lot, termed common criminals and with no show in ordinary courts. It begs motorists to assert their equal rights with pedestrians and users of horse-drawn vehicles and makes the assertion that, contrary to common belief, no motorist deliberately causes an accident or wilfully violates a law. All being true, it is a case of letting the case wear itself out, just the same.

Next the clutchless and gearless automobile.

Motoring Illustrated, of England, publishes a picture of "a policemen's nest on the Ripley side of Wisley." Doubtless where they hatch their plots, eh?

That thousand dollar entry fee for the Vanderbilt cup race will prove rather expensive advertising for the fellow who enters with a view of securing a lot of free space.

After John D. Rockefeller received such a sarcastic reply from a groceryman who sold him a gallon of his own oil at a cent profit he generously took the hint and dropped the price of gasoline a cent a gallon.

It is pleasing to observe that one Taylor, who publishes a horse paper and was kicked off the racing board of the A. A. A., has gone back to the stable and henceforth will leave automobiles alone. What consolation there is in this announcement!

The dear old Chicago Tribune must find consolation in the reports that New York has 25,000 motorists, New Jersey 15,000, Pennsylvania 12,000, and other states in proportion; the jump in the number of automobilists in Chicago from fewer than 3,000 to about 4,000 in a few months must also be pleasing. It certainly is not proof of the Tribune's influence on the public.

April 20-22—Touring car competition, France.

April 25, 26, 27—Beach races, Atlantic City, N. J. Atlantic City Automobile Club.

May 3—Tourist trophy trials, Isle of Man, Great Britain. Automobile Club of Great Britain and Ireland.

May 6—Targa Florio touring car race, Italy.

May 10, 11, 12—Wilkesbarre, Pa., hill climb.

May 13—Voiturette competition, Austria.

May 13-24—Motor cycle tour of France, starting from Paris. Auto-Cycle Club of France.

May 15-25—Milan gold cup race, Milan, Italy. Italian Automobile Club.

May 15-31—Endurance run, Italy.

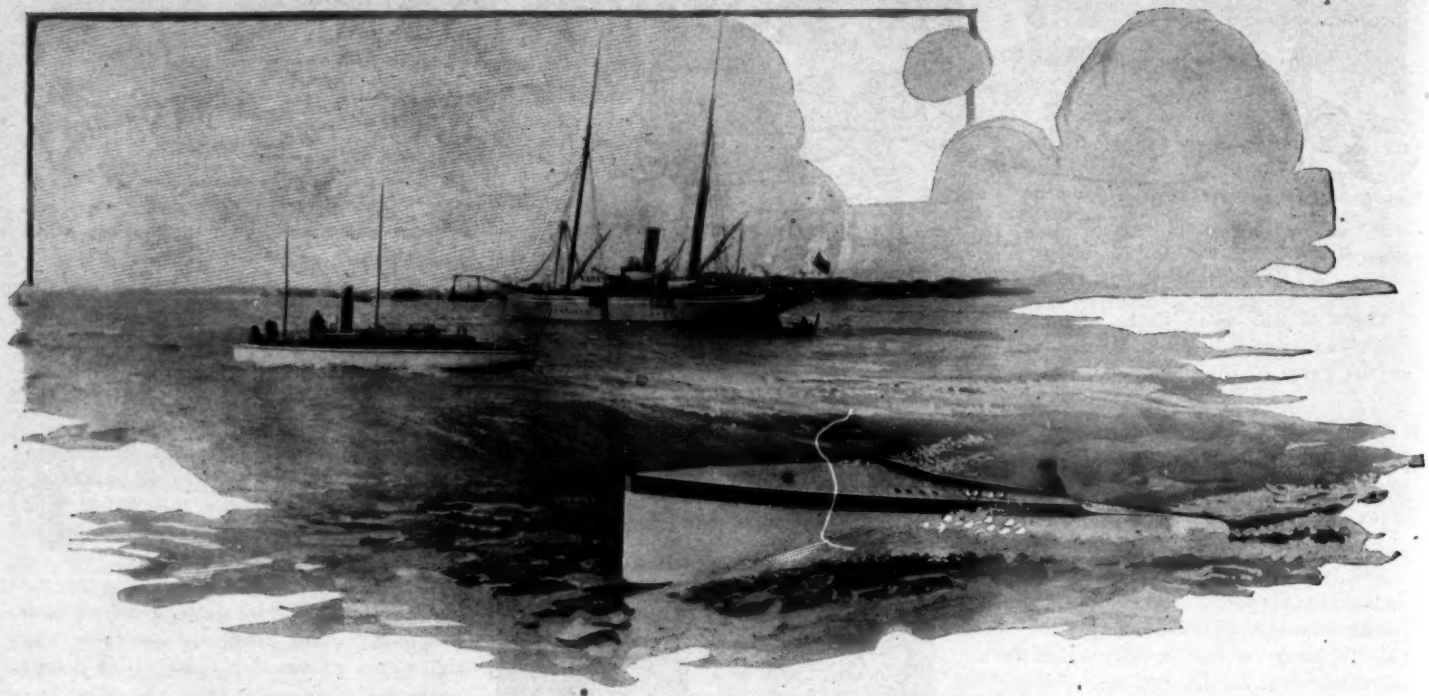
May 24, 25, 26—Open air show, New York. Automobile Trade Association. Empire City track.

May 27—French motor cycle eliminating race.

June 1-3—Electric vehicle competition, France.

June 6—New York Motor Club's orphan day.

ANNUAL MONACO AQUATIC MEET OPENS



FIAT XIII, THE LANCIA OF THE SEA, GETTING AWAY FROM THE LINE

Paris, April 5—The gay French metropolis is deserted this week by the motor boat contingent, which has hied to Monte Carlo for the Monaco meeting, which opened there yesterday. The races, of course, are the attraction, but preliminary to them there is being held the third annual motor boat exhibition in a special enclosure on the Condamine, which is most conveniently located, being close to the water's edge. Here are displayed all the latest models, as well as the racing craft themselves. This affair opened yesterday and despite a heavy rain and chilly weather a large crowd was out, among those present being: Prince Louis, Baron Henri de Rothschild, Lionel de Rothschild, M. Kohn, Jellinek-Mercedes, M. Chauchard, M. Gauthier, Baron de Caters, Henry Fournier, M. Tellier, Camille Blanc, M. Desmanmi, Lord Howard de Walden, Lord Montagne of Beaulieu, Lord Berwick, Signor Vincenzo Florio, Lord and Lady Craven, Izzet Pacha, Count Pertusati, M. Gillibert, M. Rosset, Comte de Malleville, Mr. Almeric Paget, Comte Maurice Dalsace, Prince de Lucinge-Faucigny, M. de Lesseps. The craft were explained by M. Prade, as general organizer.

While the racers are not so numerous as last year, more of those on view are likely to take the water than was then the case. They are more serious constructions in every sense, larger, more highly finished, and obviously planned upon previous experiences. Some of the racing craft, of which there are twelve, are pure gems, so far as outward appearances go.

MONACO MOTOR BOAT SHOW—BAY IN THE DISTANCE

The palm goes unquestionably to the Fiat XIII. The hull, by Taroni, is of large beam and with a much greater freeboard than was hitherto contemplated. The propeller is of only moderate size, but the pitch is extraordinarily deep. In recent trials she is said to have given more than 30 miles.

The three Tellier boats in this class, the Seasick, the Caflit, both with Itala motors; and La Rapière II, with a Panhard motor, have also been favorably criticized by sportsmen here. The new Napier boat, the Siola, is almost flat-bottomed. On her trials she gave much speed, but her shape is not popular. The most curious boat in the exhibition is the Mercedes W. N., designed as a racer after the model of a one-rater sailing vessel, with a keel of enormous depth. Her propellers are not yet fixed. M. Jellinek-Mercedes says her speed was not so great as he expected, but that as a seaboat she gave excellent results.

In the large cruiser class the progress realized seems even more noteworthy. One boat in particular, the Pampa, built by Baglietto and equipped with a Fiat engine, has attracted the applause of all by reason of her marvelous lines, high finish and well-placed motor. It will not be surprising to see her beat some of the racers, especially in anything of a seaway. In fact, in the cruising class the Italians have matters practically to themselves. The Delahaye boats are admit-

tedly good and make an excellent show for France, but the opinion here is almost unanimous that Italy will show the way round the course every time.

M. Pérignon has a fine boat in his La Lorraine, with a de Dietrich motor. She is painted dark green and seems a formidable competitor. Of course, any definite criticism of the competing boats is impossible until the trials commence on Friday, as the majority of those on view are not yet completed, nearly every one being minus propellers. General lines alone can be taken into consideration. The exhibition will continue open tomorrow, while Friday and Saturday are given over to tuning up the boats.

The first race will take place on Sunday morning, being for small cruisers. In the afternoon the small racers will compete. The committee has decided to keep all the racing within sight of the Tir aux Pigeons. A 10-kilometer course has been mapped out with buoys, and as all the races, with one exception, are but 50 kilometers in length, there will be none of the eternal waiting about for results

In weather a trifle more disheartening than that of yesterday, the King of Sweden made an official visit to the exhibition this afternoon. Protected by a vast umbrella, he made a round of the exhibits and asked many questions. He seemed much interested and expressed the intention of watching some of the races.

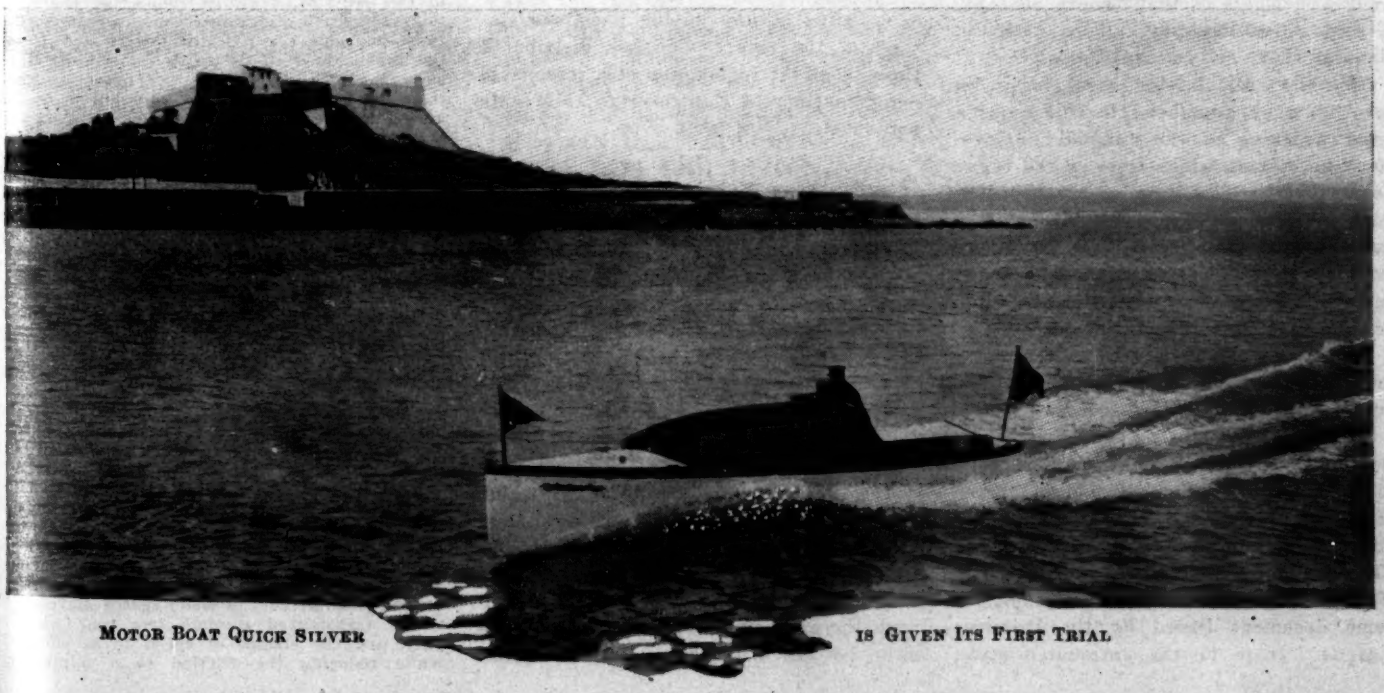
During a gale last night Fiat XIV, which was being towed to Monte Carlo, broke loose from the tug off San Remo and was badly smashed on shore. The tug was obliged to take shelter in San Remo. Fiat XIV had been delayed for some time by bad weather, thus being late for the exhibition. Rapide met a similar fate. On Tuesday night a fierce gale sprang up at about 1 o'clock, and several small boats in the harbor were wrecked and others were saved with much difficulty from a like fate. Angèle II, a small pleasure boat, broke her moorings and was completely wrecked against the rocks. M. Marean's Philosophe met with the same fate. The Ninette and the Jean Marie were also cast against the rocky shore, but not completely wrecked. The Quand Même was able to get behind the new breakwater in time.

TRAINLOAD OF BOATS FROM PARIS ARRIVES AT MONACO

Downright bad luck appears to be dogging the Monaco promoters. In the first place the weather is wretched on the Riviera at the present moment, with squalls of rain and hard winds from the southeast quarter.

As a matter of fact, France is really funky this year of Italian and British rivalry and they frankly admit the fact, even going so far as to forsee a French defeat all along the line where their competitors show themselves.

Paris, April 12—Special cablegram—The championship of the sea, the most important of the motor boat races at Monaco this week, was won by Le Delahaye, which covered the 125 miles in 4 hours 40 minutes 12 seconds. Antoinette IV was second in 4 hours 42 minutes 53 seconds; Fiat XIII third in 4 hours 46 minutes 31 seconds; Arrow-Napier fourth in 4 hours 47 minutes 38 seconds; Delahaye-Nautilius fifth in 5 hours 56 minutes 41 seconds. Four others, whose time was not taken, finished—Mercedes W. N., Mercedes D. L., Volasent and Pampa. Twenty-five in all started in a calm sea and under a hot sun, Rapière leading for a while, followed by Antoinette and Le Delahaye. Then Fiat XIII shot ahead, holding the position for 150 miles, only to meet with an accident that put her out. Because of her gallant showing Fiat XIII has been styled the Lancia of the sea. Rapière, too, quit, throwing up the sponge as it were on the fifteenth round. The winning boat has a 400-horsepower motor.



MOTOR BOAT QUICK SILVER IS GIVEN ITS FIRST TRIAL

ARE OF THRIFTY SORT

British Motorists Talk of Forming Association to Compel Trade to Give Discounts

London, April 4—A brilliant idea has suggested itself to somebody to form an association of motorists, the members of which shall obtain all their motoring requisites from the trade at trade discounts. There is nothing more fascinating to the ordinary man's mind than the prospect of getting something cheaper than he is in the habit of buying it, and it is probable a large number of members will be found for this body. An equally large number of manufacturers, or rather traders, on this side will also be ready to welcome it, since the majority of these, being only agents themselves, find it difficult to trade satisfactorily through the retail agents here who demand proper business terms. But there is a section of responsible manufacturers who, up to the present, have been compelled against their own inclinations to support the retail trader. They desire to do without him and will welcome anything which will help them satisfactorily to do so.

The retail trade in this country is entirely unorganized and to that extent defenseless; but if a society or association of this kind springs into being, it is certain the retail trade will be forced into organization. The whole affair is to be expounded at a meeting in the Criterion restaurant, Picadilly, on Monday next.

It will be interesting to see how the Society of Manufacturers regard the movement, as last January, a year ago, its council passed a resolution to the effect that payment of discounts to others than those in the trade was contrary to the principles of the society and prejudicial to its interests, yet some of the leading members of that society have expressed a readiness to fall in with the plans of that new discount association.

Of course all the lay press is in its favor as they apprehend it will cause a great widening of the automobile movement, an opinion which rests on the vague belief that the retail trader has about 50 per cent profit in his deals, whereas the average discount on cars to traders here is 10 per cent and never more than 20 per cent, this latter figure being conceded in few cases to important importers.

It was not to be expected that a movement like automobilism could long remain superior to the inroads of snobbery in this country. Where there is money there will be snobs, to whom contact with the common herd, however cultivated, is obnoxious and to be avoided. It is obviously for that type of motorist that the Road Club of the British Isles has been founded. The prospectus reminds one strongly of some document issued by the Primrose League. It is in the antiquated style, rubricated and in its very appearance spells "exclusiveness." The president is Lord Montagu, of Beaulieu, who will be better remembered as John Scott Montagu, M. P., proprietor of the Car newspaper. Among the forty odd vice-presidents and honorary members are titled men and women, including the Lady Edward Spencer Churchill, the Lady Mary Wentworth Fitzwilliam, His Excellency the Honorable Whitelaw Reid, American ambassador; the Japanese ambassador, Field Marshal Earl Roberts, Lord Northcliffe, otherwise Sir Alfred Harmsworth, proprietor of the Daily Mail, etc., etc. The raison d'etre of the club is the use of the main roads out of London for purposes of touring by horse or by car, and any member of any of the swagger West End clubs is eligible for membership. Other individuals, unblessed in this particular, have to find their customary guarantees for their social status and good conduct. It is regarded as the apotheosis of snobbery.

TEST TOUR ROUTE

Paris, April 6—The French automobile club recently sent off a runabout to cover the proposed European circuit and to report on the various stages. This car has already passed over the most difficult bits of the course, among which are the Grenoble-Milan, Vienna-Prague and Prague-Breslau stretches. Some of the roads are in a very bad state, owing to the melting snow, but the car has succeeded in doing the stages within regulation time and the French automobile club has officially told the press that the stages are quite within the capabilities of an experienced conductor and that the populations of districts passed through have given the assurance that the participants of the tour will be well received everywhere. There is one detail practically settled, small but very important. The competitors will have tickets at their disposal which will entitle the holders to the supply of gasoline at any of the numerous stations of the race commission, distributed throughout the region, and at a reasonable —for continental Europe—rate of 9 cents per quart.

NOVEL JOLT TEST

Paris, April 4—The League of Chauffeurs is planning to hold a suspension test in order to discover the best form of springs or shock absorbers. Competitors must present themselves with their car and sixteen milk bottles of the type commonly used in Paris, held in two metal carriers known as porte-bouteilles. The two porte-bouteilles will be placed, one in each of the side entrances of the car, fastened to the floor, the bottles filled with water and left uncorked. The car which can travel at a given rate of speed over the bad roads between the Porte Maillot in the west end of Paris and the village of Bougival, about 8 miles out, and return with the greatest amount of water in the milk bottles, will have won first prize.

AMEND THEIR CLAIMS

Holders of Renault Patent Ask British Office to Allow Them to Make Some Corrections

London, April 7—The MOTOR AGE correspondent has been unable to obtain a copy of the amendments in the patent 3,981 of 1899, which the Renaults are endeavoring to pass through the patent office here. In their justification of claim for such alterations, they state that clerical and other errors were allowed entrance into the original specification, but it is said it is extremely unlikely that the controller of patents will permit the alterations to be made. In case he should do so, however, opposition is certain to be entered on behalf of the British manufacturers by the Society of Motor Manufacturers and Traders which has the matter in hand. Herewith are the claims as now amended. Comparison with the original claims is interesting:

Claim 1—An improved driving and speed-changing mechanism for motor vehicles, characterized by the fact that the movement is transmitted from the motor to the driving wheels directly by gear wheels without the medium of chains or belts, though the motor and the speed-changing mechanism be supported on springs and capable of being moved independently from the wheels, the said mechanism comprising, moreover, the above described peculiar devices enabling the movement to be transmitted—in the case of maximum speed—through two gear wheels only, and the changes of speed to be effected while reducing the friction to a minimum, substantially as and for the purpose specified.

Claim 2—In a gearing for motor vehicles, the combination of a primary movement member driven from the motor, a clutch working with said member, a shaft driven by the clutch, the shaft being in two sections with a releasable connection between them, variable speed gear mounted on one or more parallel shafts for driving the sections of the shaft and the herein described movement transmitting devices in connection with said shaft consisting of the flexible connection 39 and the gear between it and the driving axle.

Claim 3—The combination of a shaft formed in two sections, a clutch connecting the sections with each other, an eccentrically-mounted shaft, movable eccentrically toward and from the first named shaft, gears fastened to the several shafts, and means for operating the clutch and for throwing the eccentric shaft in unison with each other.

Claim 4—The combination with a casing, of a shaft mounted thereon and formed in two sections, a clutch connecting the sections, a shaft mounted in the casing, means in connection with the shaft for throwing the clutch, a third shaft eccentrically mounted in the casing and movable toward and from the first named shaft, gear wheels attached to the first named shaft and to the eccentric shaft, and means for throwing said eccentric shaft, such means having connection with the second named shaft.

The original claims are as follows:

Claim 1—An improved driving and speed-changing mechanism for motor vehicles, characterized by the fact that the movement is transmitted from the motor to the driving wheels directly by gear wheels without the medium of chains or belts, though the motor and the speed-changing mechanism be supported on springs and capable of being moved independently from the wheels, the said mechanism comprising, moreover, the above described peculiar devices enabling the movement to be transmitted through two gear wheels only, and the change of speed to be effected while reducing the friction to a minimum.

substantially as and for the purpose specified.

Claim 4—A gearing for motor vehicles, the gearing being arranged in two sections, and a shaft connecting the sections, the connections being such as to permit the independent movement of the several sections of the gearing.

Claim 5—In a gearing for motor vehicles, the combination of a primary movement member driven by the clutch, the shaft being in two sections with a releasable connection between them, variable speed gear for driving the sections of the shaft, and movement transmitting devices in connection with said shaft.

JARROTT IN ROAD TRIAL

London, April 7—Charles Jarrott, on whom seems to have fallen the mantle of C. S. Rolls in the matter of obtaining free press advertisement through the enjoyable pursuit of driving a motor car hither and thither over the continent, is engaged in endeavoring to drive a Crossley car from London to Monte Carlo inside 48 hours. He started on Thursday last at 8 o'clock and up to the time of writing he is only 25 minutes outside his schedule time at Aix en Province, which is only 75 kilometers from the journey's end.

"I had arranged to go down to Monte Carlo by road on my 40-horsepower Crossley, and it occurred to me that it would be very interesting to make the attempt to get through from London to Monte Carlo in 48 hours," said Jarrott before he started. "Of course, such a thing has never been done before, and the distance—about 1,000 miles—is sufficient to make one think twice about making the attempt. However, I made the few necessary arrangements and have also succeeded in persuading Filson Young to accompany me on the trip. In addition to this, I have my own mechanic, and I shall pick up a guide immediately on reaching France to give me some assistance, so far as the road is concerned.

"My arrangements are briefly as follows: I shall leave London Thursday morning next, at a quarter to 8, and shall drive to Folkestone, at which place I hope to arrive at a quarter past 11, and catch the 11:45 boat for Boulogne. On arriving in Boulogne, and after the usual customs formalities, I shall start straight away for Monte Carlo, at which place I hope to arrive within 48 hours of my start from London. The road I shall take is via Abbeville, Beauvais, Pontoise, Paris, Dijon, Lyons, Orange, Avignon, Cannes and Nice."

STILL WAIT ON MINISTER

Paris, April 6—Owing to the recent change in the French government, the deputation which awaited on the minister of the interior for obtaining his consent to run the grand prix has all its work to do over again. It is not expected that any serious difficulties will be met with in respect to the course. However, builders of tribunes and speculators in general are keenly awaiting the result of the ministerial decision before making any move in regard to building or obtaining options on the ground. The drivers report that the fastest car will win the event.

MAKE A MOTOR MILITIA

British Authorities Will Register Owners for Remount Service —Bus Tours Planned

London, April 4—The British war office has decided to form a register of all the industrial motor wagons and car owners in the united kingdom, for the carrying out of a scheme identical with that in use on the continent, and in use in this country also for remount purposes in time of war or military pressure. The scheme embraces a registered list of owners with full description of the cars, buses, devices, etc., they own and their capabilities. On the payment of a small annual subsidy the government obtains the right to demand delivery of any or all of these at a fixed valuation, or, as an alternative, to have the hire or use of the vehicles at fixed daily rate of hirage. The Motor Van and Wagon Users' Association is acting with the government in this matter.

Motor bus tours look like being a feature of the coming season. At the beginning of last winter one of the London companies advertised it was about to drive a Milnes-Daimler motor bus from London to Nice, but after a large amount of free advertisement had been obtained the project was dropped. It is now revived, and the same company proposes to send a motor bus touring through France with passengers, who shall pay a handsome fee for the privilege of seeing the continent from the deck of a bus. The idea underlying this is that if a bus can get through a tour of this kind it is a reliable article. The same idea found expression in the drive of a Prunel motor bus from Paris to London. It had been on service in Paris as a preliminary trial, and was then driven to Boulogne, shipped to Folkstone, and driven up to London. The whole trip was successfully negotiated and the bus in question was on view at Cordingley show. An English company—the Maudsley, of Coventry,—only the other day sent a bus by road to Edinburgh, but it was merely the ordinary form on this side of delivering a vehicle of the kind to a customer, albeit the journey was a difficult one. These big affairs average about 15 miles an hour when empty.

London had its first motor bus strike the other day when the drivers and conductors on the route between Chalk farm in the north to Waterloo station in the south, struck work because the proprietors had altered their wages from $2.50 per day for drivers and $1.50 for conductors to 17 cents and 11 cents, respectively, payment per completed journey between the points in question. The reason for this was the large number of breakdowns which had been occurring. The company officials blamed the drivers, the drivers blamed the buses, but in any event the number of breakdowns did not diminish and the men declared themselves unable to earn a living, consequently they went on strike, but a compromise was effected and the journeys resumed. It is felt by the unbiased that the men had some justice on their side. It is a well known fact that good bus drivers are scarce for the reason that if a chauffeur has ability he is eagerly snapped up by owners of pleasure cars, leaving poor picking for the bus lines. A job on a pleasure car pays better and is easier than one handling the wheel of a motor bus in London.

MERCEDES 1907 PLANS

Paris, April 4—M. Charley, selling agent for the Mercedes, upon his return to Paris from a visit to the factory, where he learned the plans for 1907, announced that the Mercedes engineers at their meeting in Nice had decided that three standard models would be constructed in 1907, namely, a 35-horsepower car, a 55 horsepower and a 75 horsepower. The 35 horsepower remains much the same as that of this year, so far as the motor is concerned, and will have four cylinders. The 55 horsepower takes the place of the present 45 horsepower. The 75 horsepower will have a six-cylinder motor designed after the results obtained from the six-cylinder Mercedes racing machines of the current year. It will be designed mainly with the object of fast, silent and comfortable touring. It will have a chassis 102 inches long and 37 inches wide. All the Mercedes frames will have a breadth of 37 inches next year. The length of the 35 horsepower will be 95 inches and that of the 55 horsepower 99 inches. Another point about the Mercedes machines will be the fact that all, without exception, will be fitted with chain cases. The Cannstatt factory has decided to fit these chain cases because it tends to keep to chain drive. The Mercedes engineers repudiate entirely the live-axle principle for high power machines. M. Charley has ordered 700 for 1907. These will be placed: Fifty in Italy, 200 in America and 250 in England. This will leave 200 for France. M. Charley says that next year he intends to keep the whole sale of these vehicles in his hands, and to dispense entirely with intermediaries. For the season of 1907, therefore, the Mercedes Palace will control the entire European and American trade in Mercedes machines, with the exception of Germany and Austria.

NO SPEED GEARS USED

London, April 7—The Napier company has well in hand and will produce in a couple of months' time a six-cylinder car in which the speed gears will be entirely eliminated, speed control being entirely by throttle and spark. This is a logical outcome of the duplication of cylinders. As it will lead to cheapness of production and simplicity in control the advent of the new car has excited interest.

GETS THE GLAD HAND

Megargel's Trip East One Continuous Round of Receptions Tendered by Motorists

Lincoln, Neb., April 15—The Platte river still runs high and the lowlands on either side are under several feet of water, yet with a farm house every quarter-mile and a town every 5 or 10 miles, Fassett and myself both realize we are once more in a country of civilization and that no matter how deep the mud and water, we can figure on New York in a few more weeks at the outside.

Our greatest trouble now is tearing ourselves away from Reo agents all along the line. These ever enterprising hustlers have followed every stage of our journey both ways across the continent and when they hear the Reo Mountaineer will pass through their town they are ready for us. The automobile clubmen are also on the lookout for the Mountaineer and every little town in this section has its automobile club. Between the clubs and the agents, New York, the end of the journey, may still be some distance.

Lincoln, more famed as the home of W. J. Bryan than as the capital of one of the richest farming states in this big country of ours, possesses many miles of good pavement and the automobile has just commenced to become popular. There are a number of good garages and everyone seems to be doing business. The more enterprising agents attended the show at Omaha and took their prospective customers with them. This resulted in something doing. Now the agents are getting together and either an endurance run of some magnitude or a hill-climbing contest will be held just as soon as the out-of-town roads will permit.

Our Weed tire chains have certainly seen some pretty hard service since the Mountaineer left Denver and they have rarely been off the rear wheels of the Reo since. Just what we could do without them is a matter I hate to think about, for when I allow my thoughts to wander back to the time I did southern Illinois in the Old Pathfinder, in days before the Weed chain had been brought to my notice, and remember the bushels of good hemp rope that we daily mutilated and wore out in trying to run through the gumbo mud of Egypt, I feel sad.

It also makes me feel badly when I think of the work I did with blocks and tackle on previous trips. Now we simply run out 100 feet or more of ⅜-inch steel cable, attach the end to some friendly telephone pole or fence post and, slipping on the crank, wind our way through mud holes that would have required a countless assortment of pulleys and tackle. No more long tours for me unless my car is equipped with windlass and cable.

From Omaha we will express our old camping supplies on to New York, as night stopping places are readily found, and I think there will be no further occasion to carry blankets, cooking utensils, food or firearms. Our sand tires were shipped home long ago and our heavy mackinaw clothing will also be discarded at Omaha. High shoes, long rubber boots, rain coats and goggles, however, we will still carry. Flies troubled us for the first time since leaving California this week, necessitating our making use of our goggles many times.

Owing to the hard usage our leather and corduroy clothing has been subjected to since we purchased our equipment in New York last August, it will become necessary to completely restock our wardrobe for the remaining 2,000 miles. Our route takes us through Des Moines, Chicago, Cleveland, Toledo, Buffalo, Rochester and Albany.—PERCY F. MEGARGEL.

TUNING UP FOR MEET

Atlantic City, N. J., April 16—The advance guard of the racing contingent put in an appearance on the Ventnor beach course last week, and try-outs will be the order of the day until the big tournament begins, 10 days hence. Every low tide sees the touring car hot dogs especially numerous, and as there are many chips resting on as many shoulders over the relative merits of cars, much sport in this class is looked for. Late entries include the Darracq, which crossed the line first in the Vanderbilt cup race and which last winter won the Havana road race with Demogeot up. It will go up against the Christie, Thomas and Napier in the free-for-all. The Atlantic City Automobile Club has hung up $100 cash for the driver of the car which does a mile under 30 seconds—a very heavy string, but the feat is not impossible of accomplishment if the conditions are right. Additional entries were received during the past few days from several owners of Wintons and Thomases, besides Stevens-Duryea, Simplex, English Daimler, Wayne, Stoddard-Dayton, Maxwell and Reo cars, not to mention the Grout and White steamers. It is estimated that there will be upwards of eighty separate cars entered for the twenty-six events comprising the 3-day programme.

WILL FIGHT FOR JUSTICE

Chicago, April 17—The Chicago Automobile Dealers' Association has determined to make a bold fight for the rights of motorists in this city and for that purpose President Temple will appoint a legislative committee which will secure the services of Attorney Jennings, who has experience in such cases, gained when A. C. Banker made his celebrated attack on the tag law a couple of years back. The principal point of attack will be on the indiscriminate arrests made for alleged scorching. A fund will be raised to carry on the battle with the dealers contributing.

PUTS O. K. ON GARAGES

New York Inspector Investigates Sewer Explosions and Holds Gasoline Not to Blame

New York, April 14—There has been a great howl and howdydo of late that various sewer explosions, which have recently occurred, have been caused by the accumulation of gasoline vapor liberated from neighboring garages. Accordingly Fire Commissioner O'Brien directed George E. Murray, inspector of combustibles, to visit the garages in the automobile district between Forty-second and Sixty-sixth streets. Murray's report, which goes fully into the precautions employed by garage-keepers, and contains some valuable suggestions, will probably interest the motor car trade and fire authorities in other cities, since advanced garage construction is about the same the country over. The report is as follows:

On Friday, April 6, a succession of explosions took place in the trunk sewer located at Fifty-first street, between Eighth and Tenth avenues. On Saturday I assigned Edward F. Horne, one of our deputy inspectors, and two uniformed firemen to visit all garages in the territory covered by that sewer, viz.: from Forty-eighth to Sixty-second street, where there are located forty garages, every one of which is conducting its business according to law, law, and have a license from this bureau.

Each garage has a washstand with sewer connection, where the mud and dirt are washed with water from the car. With a few exceptions this washstand is not used while filling car tanks with gasoline, while oiling the machinery nor while cleaning parts of the machinery.

In garages each car has a station and under this car is a drip pan. Here the chauffeur cleans his machinery, uses his oils and fills his gasoline tanks.

The use of kerosene in cleaning the machinery is, as a rule, insisted upon; there is no emptying of car tanks except in the repair shop. The gasoline is then put in a safety can and returned to the car from which it is taken. There is no waste of gasoline in garages. The drip pans used in the garage and the repair shops are cleaned at proper intervals.

Some garages use sand in the pans; this sand, when soiled, is dumped into garbage cans; other garages scour the drip pans at the washstand; no gasoline is ever used to scour the floor of garages.

It is true that machine oil and waste lubricating oil, dirty kerosene oil and other waste liquids, and possibly, at times, a very small quantity of gasoline, do pass into the drainage system. There is no other way provided to get rid of these articles; but if gasoline reaches the sewer it is by accident, as the garage owner is very careful to watch that he gets the legitimate use of all the gasoline he buys.

We know the extreme volatile character of gasoline, and it is doubtful that the small amount from each garage that reaches the sewer is responsible for the sewer explosions, considering that the union of the refuse oils, kerosene, water, etc., in the sewer destroy the life and character of the gasoline. The conditions would not bring about an accumulation of gasoline vapor, and yet if these explosions occur from compression, one should expect such explosions near the source of the gasoline supply, viz., on Broadway, where most of the garages are situated, and again the disturbance would certainly be felt in the traps of the garages. This did not occur.

Sewers are continually giving off gases containing sulphuretted hydrogen, light carburetted hydrogen, free nitrogen, carbonic acid, etc.

Some of these gases are known to be inflammable and under favorable conditions might be explosive. There have been sewer

explosions prior to 1899, before garages existed, and occasionally explosions occur now in districts where no garages are found. Ten years ago in Boston a sewer explosion wrecked the Masonic Temple, doing much damage.

I respectfully suggest that a cesspool trap of the old school should be installed in each garage, or the old trap that for the past 40 years has been used around the various oil refineries, either of which would prevent the grease, dirty kerosene or gasoline from getting into the sewer.

That the sewers in the vicinity of garages be provided with warm ventilating pipes, to relieve the sewers of their accumulation of gases.

That the sewers be flushed with a gas-dispelling preparation.

That the sewer department use a gasoscope, which will give an alarm when a dangerous condition of the air supervenes.

That the authorities unite to remove gasoline from use as a motive power in vehicles by removing the tax from alcohol, which, mixed freely with water, will not explode.

TWO MORE CUP ENTRIES

New York, April 17—Sidney S. Breese, Arthur J. Moulton and C. L. Lawrence, who will manufacture automobiles in Brooklyn under the firm name of Breese, Moulton & Lawrence, have entered a four-cylinder 80-horsepower car for the Vanderbilt cup. This is the second American nomination. It is said that the car will be of notably light weight and that it will be known as the Pirate. It is further reported that ten young society bloods have formed the Pirate Club and have contracted with the firm for a car each. Sidney S. Breese is a son of James L. Breese, of the A. C. A., a former member of the racing board and an annual competitor at Ormond. Charles A. Singer, president of the Matheson Motor Car Co., of New York, who is a member of the A. C. A., has sent a check for $1,000 to Chairman Thompson, of the racing board, entering a Matheson. Its driver will probably be Robert Mongini, who was a Matheson pilot in last year's eliminating trials.

LONG BALLOON TRIP

Paris, April 5—Fernandez Duro, who will handle the Huracan, as the Spanish representative in the international balloon race, has just completed a 15-hour trip over the Meditteranean which he claims is a record for an over-sea voyage in an ordinary spherical balloon. He was unable to cross the Mediterranean because of adverse winds, but he negotiated the Gulf of Lyons, descending in safety near Perwhen he traveled from Toulon to Portpignan. Comte Henry de La Vaulx remained 41 hours over the Mediterranean Vendres, but his balloon, the Mediterranéen, was specially constructed for the purpose and was fitted with special appliances.

PASSES FREE ALCOHOL BILL

Washington, D. C., April 17—Special telegram—By a vote of 222 to 7 the house today passed the Payne free alcohol bill. Several strong speeches in opposition to the bill were made but they availed nothing. The senate is expected to take prompt action on the Payne bill.

MIXED MEET IN SOUTH

Good Roads, Aeroplane and Motor Car Races Interest Spectators at Jacksonville, Florida

Jacksonville, Fla., April 14—Success attended the first tournament promoted by the Jacksonville Automobile and Motor Boat Club, although the events themselves hardly could be regarded as national in character, being confined to contests between stock cars, the program being sprinkled with bicycle races. There was also a good roads meeting and an attempt to fly an aeroplane.

Atlantic beach marks the northern end of the Florida beaches. The beach course, as laid out, starts at the high bluffs at Burnside, a little hamlet 3 miles north of the Continental hotel and named after the wreck of an iron steamer that lies there. The beach itself is scarcely second in importance to the Ormond-Daytona beach, but is certainly much faster than Cape May or the Atlantic City beaches. It is a great deal flatter than the Ormond-Daytona beach, but this flatness is a slight objection to it, because in places the water does not drain off quite as rapidly as it should, owing to this flatness. For miles the beach at low tide is about 200 feet wide, and as hard and smooth as a cement floor. At other places it has a glossy damp sheen, giving it a wavy appearance. The 3-mile port is just back of the Continental hotel, a long pier jutting into the ocean.

A largely attended and enthusiastic meeting of delegates from the automobile clubs of the south and other good roads enthusiasts and workers, representing the manufacturing and farmings interests, was held last Tuesday in the rotunda of the Hotel Continental, when the Southern Motorists' Federation was formed. The object of the call was stated by W. J. Morgan, of New York, who issued it. H. P. Rail, of the Jacksonville Automobile and Motor Boat Club, was chairman pro tem and Luther H. Burton, of Richmond, secretary pro tem. The meeting was called for the purpose of organizing to build good roads in the south, and especially a main trunk hard road from Richmond, Va., to Jacksonville, Fla. The following officers and directors were elected: Ben L. Jones, president Macon Automobile Club, president; Frank C. Beatty, president Savannah Automobile Club, first vice-president; Colonel Joseph P. Bryan, editor Richmond Times-Dispatch, second vice-president; George W. Vanderbilt, Asheville, N. C., third vice-president; W. R. Rannie, second vice-president of Jacksonville Automobile and Motor Boat Club, secretary; Edward Inman, of Atlanta, treasurer.

As a prologue to the tournament, Aeronaut Hamilton tried out his new Ludlow aeroplane No. 16. Without a flutter or a pause, the aeroplane went up into the air at once, being towed by two White steamers to give it headway. It had covered 500 feet when Hamilton was seen waving his arms frantically. A slight crackling sound was heard while the balloon was about 200 feet in the air, but before the cars could be stopped the fearful strain on the side guy ropes caused some of the bamboo poles of the aeroplane to break, the aeroplane swung right out over the ocean, turned turtle completely and fell downwards as rapidly as it had ascended, Hamilton going with it head first. Save for a black and blue and badly bruised arm and a slight cut on the nose, which bled profusely, Hamilton was all right.

REGISTRATION FIGURES

New York, April 15.—According to the official statistics, 1,580 automobiles were registered in New York state alone in January, February and March. Of this number only 180 were of foreign construction, the aggregate selling price of which was $1,170,000. For the other 1,400 cars, which were of American make, the sum of $1,520,000 was realized, making the grand total for the 1,580 machines $2,690,000. In the March registration the leaders among the American cars were as follows: Cadillac, 62; Packard, 42; Autocar, 35; Pope, all makes, 34; Maxwell, 33; Franklin, 32; Locomobile, 29; Winton, 29; Rainier, 26; White, 26; Oldsmobile, 21; Peerless, 19; Stevens-Duryea, 19; E. V. C., electric, 19; Ford, 18; Reo, 18; Pierce, 18; Royal, 18; Thomas, 15, and Rambler, 13. Eighteen foreign makes were registered, the Panhard having nine, Fiat seven, Martini and Berliet each five, Rochet-Schneider, Renault, Mercedes and Decauville each four, and the Clement, de Dietrich, Mors and Hotchkiss each three. New Jersey registered 322 cars in March, raising the total to 15,203. Massachusetts had 371; total, 12,208. Pennsylvania had 3,168. New York now boasts a grand total of 25,452, which is high-water mark.

CORRECTS IMPORT FIGURES

New York, April 17—According to an official report just obtained from the department of commerce and labor by the Association of Licensed Automobile Manufacturers, the total importations of foreign-made automobiles for 1905 was about 200 cars less than the recent estimate made from the New York customs records. The correct figures, showing where the cars went and what Uncle Sam made on them are as follows:

Consigned to—	Cars	Value	Duty
Boston and Charleston	29	$ 99,585	$ 44,813.25
Chicago	16	58,510	26,329.50
Cuyahoga, N. Y.	1	1,713	770.85
Georgetown, D. C.	1	3,046	1,368.00
Grand Rapids	1	2,100	945.00
Kansas City, Mo.	1	2,482	1,116.90
Louisville, Ky.	1	3,860	1,737.00
Newport, R. I.	3	13,539	6,092.55
New York, N. Y.	827	2,930,402	1,318,680.90
Philadelphia, Pa.	13	57,613	25,925.85
St. Louis, Mo.	1	1,988	894.60
San Francisco	2	5,336	2,401.20
Totals	896	$3,180,174	$1,431,075.60

During 1905, automobile parts to the total value of $231,606 were imported.

SMALL INVENTORS HOLD SHOW IN PARIS

THE VELO-HIPPIQUE

Paris, March 31—The second Exposition des petits Inventeurs, as the French term it, or the show for small inventors in good, plain English, is now on at the Grande Roue under the auspices of L'Auto. The affair is designed to give the small fry and poor inventors a chance to bring to the attention of capital their latest ideas. Under the rules only inventions pertaining to the automobile and bicycle are allowed space and eighty exhibitors have taken advantage of this opportunity.

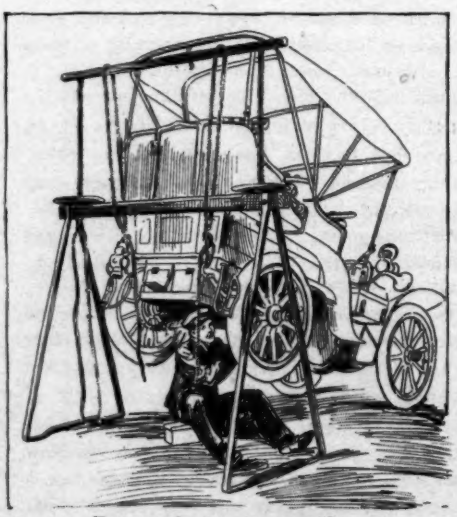
The show opened at 2 o'clock today. The French minister of public works and the minister of public instruction, the prefect of police and a few municipal councillors either turned up in person or were represented at the inauguration, which took place in the grounds of the Paris great wheel. Evidently the word had passed round that small inventors should be encouraged, and the officials conscientiously and sympathetically fulfilled a duty which, however, was by no means without interest. The exhibition will be open for 9 days, including two Sundays, and it is certain, judging from the success of the opening day, that the exhibition will justify its existence.

Of the eighty exhibitors, the greater number confine themselves to ideas relating to the automobile or motor, although other sports have not been forgotten. There are not so many stands as in 1905 by about twenty, but the quality is there, and the exhibition has a serious appearance. To encourage the small inventor, several well known automobile makers, including Messrs. Brasier, Serpollet and others, have given it encouragement.

The pretty little hall is full to overflowing with ideas. There are some eighty inventions spread out before the public, all applying to sport, and the great majority to motor sport. Perhaps there are ten which do not in one way or another own allegiance to the motor. Leaving these apart, the exhibition divides itself into three headings: Inventions relating to automobile construction or accessories, to motor cycles and to motor boat craft. A few, of course, are equally applicable to all three. Taking these first, there is a very ingenious hand siren which is guaranteed to be audible at over a mile. You simply pull out the handle by stages and a spring does the rest. It is styled the System Blassieaux and is robust and light and is considered practical.

The Strümpell spark plug, in addition to an improved design and construction, is fitted at the base with a small propeller which, by stirring the carburated mixture in its passage, avoids and prevents sticking or incrustation of the points of the electrodes, making the sparking surer and economy greater. The Chanut automatic stop signal is a handy contrivance. It avoids the trouble of warning following cars when about to draw up or stop for any purpose. It is put into action by the movement of the car brakes, and consists of an indicator behind the car, uncovered the moment the brakes are applied. It is luminous by night. The Doué siren and bell combined is worked by a friction ball pressed on to the motor flywheel by the ordinary pedal action. Bell or siren at will is worked by means of flexible transmission. The device has already attracted attention.

The Fuant free-air exhaust mechanism is applicable to any muffler and consists of a valve opening in any direction, fitted close to the silencer, and worked by a small lever. It is especially useful on tourist cars to detect the irregular working of the motor, to allow every ounce of motor power to be used on occasion, to warn wayfarers in the country and on tortuous roads, especially at night, and to allow free escape of the exhaust from the motor when needed, etc.



EDELINE'S AUTOMOBILE LIFT

It is claimed the Bain accident preventer and car guard is useful for cars doing much town work. It consists of two pneumatic cylinders in front of and on each side of the motor, projecting a short distance parallel to the axis of the car. In addition to this, the two cylinders are united by a bow-shaped air cushion. A light car fender hangs in front of the car wheels. In striking the object, man or beast, the cylinder on either side, or both, compresses, thus gently throwing the object to one side. At the same time the brakes are automatically applied to the car. The car fender prevents whatever may be struck from rolling beneath the wheels.

Renwez's garage-accessory is an ingenious and light instrument with two small handles and is placed beneath the car wheel, for raising the car just clear of the ground. The tire is thus removed from contact with the damp ground. The apparatus is easily applied by two turns of the handle, and the car wheel rests on its rim.

Lousyaunau is responsible for a car wheel rim which really consists of two rims, one of which is light and has the pneumatic tire attached to it by clamp screws. This slides laterally on and off the wheel rim and is clamped by a hoop which has at intervals a rectangular block attached, fitting into the rim with corresponding holes. This hoop is then slipped along the rim, clamping the whole. This system is regarded as practicable and is easily applied, allowing replacement of a tire in less than 1 minute without removing the wheel.

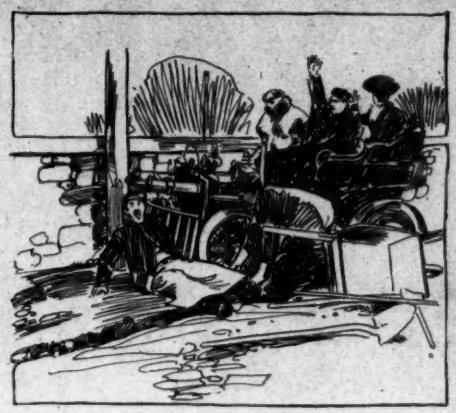
There are a number of flexible suspensions for motor cycle front and rear wheels, and attempts to supplant pneumatics with metallic endless circular bands, flexible wheels, and other ideas, none of which perhaps could claim novelty outside of the patent applications of the inventors.

A rather ingenious application is shown by Roucher—a worm gear for starting the motor, operated from the driver's seat by a lever. The apparatus, of course, obviates the use of the crank still to be seen in front of most cars.

Perhaps the freaks of the exposition are in the exhibit of Bonmarchand—the auto-hippique and the velo-hippique. The first consists of a light trestle or chassis with driver's seat and steering wheel. Behind this is the horse which pushes the contrivance. The brake is applied to the horse by pressing a plate on his nose. The velo-hippique is still more curious. The horse is mounted inside the car and stands on a movable endless belt, which actuates the gears and the car wheels when the horse is started up. The horse is normally on an inclined plane, like a tread mill tilted up at the front of the car. The driver is seated alongside and steers the car like a motor car. It is fitted with a speed-changing device and brakes. It is claimed with both these devices that the horse can easily do a day's work amounting to 125 miles per day at a good speed.

Mouiniée and Anzani show a sliding boat, flat bottomed, with intakes for air at some four or six valves on the deck of the craft or above. This air compressed out from a central tube below the boat's keel causes a gliding motion over the water. There is a 12-horsepower Bouchet motor and propeller, and it is stated that speeds of 25 miles per hour have been obtained in the punt-shaped craft, which is 15 feet long and about 6 feet broad, with a depth not exceeding 18 inches.

A little device which will be appreciated by users of motor cars is Evrard's plug holder. On one of the flat sides of a spanner wrench, one end of which is made to fit the plug body, is arranged a spring clamp, which holds the plug in the wrench and prevents one from coming in contact with the hot plug. The spring is fastened to the wrench by a screw and the end fitting over the plug is split.



BAIN CAR FENDER

Henry Edeline is the maker of a hoisting apparatus designed to be used in garages or repair shops where there is no pit. It is a substantial framework with a top crosspiece which is raised by a large worm screw at either end. A line is attached to the crosspiece and a hook in the lower end of the line is attached to either the front or rear springs. Large hand wheels serve to operate the screw and raise the end of the automobile any desired height. The same maker also has a powerful little floor jack operated by wheel and screw and a device for supporting axles to prevent the car from resting on the tires during weeks when not in use.

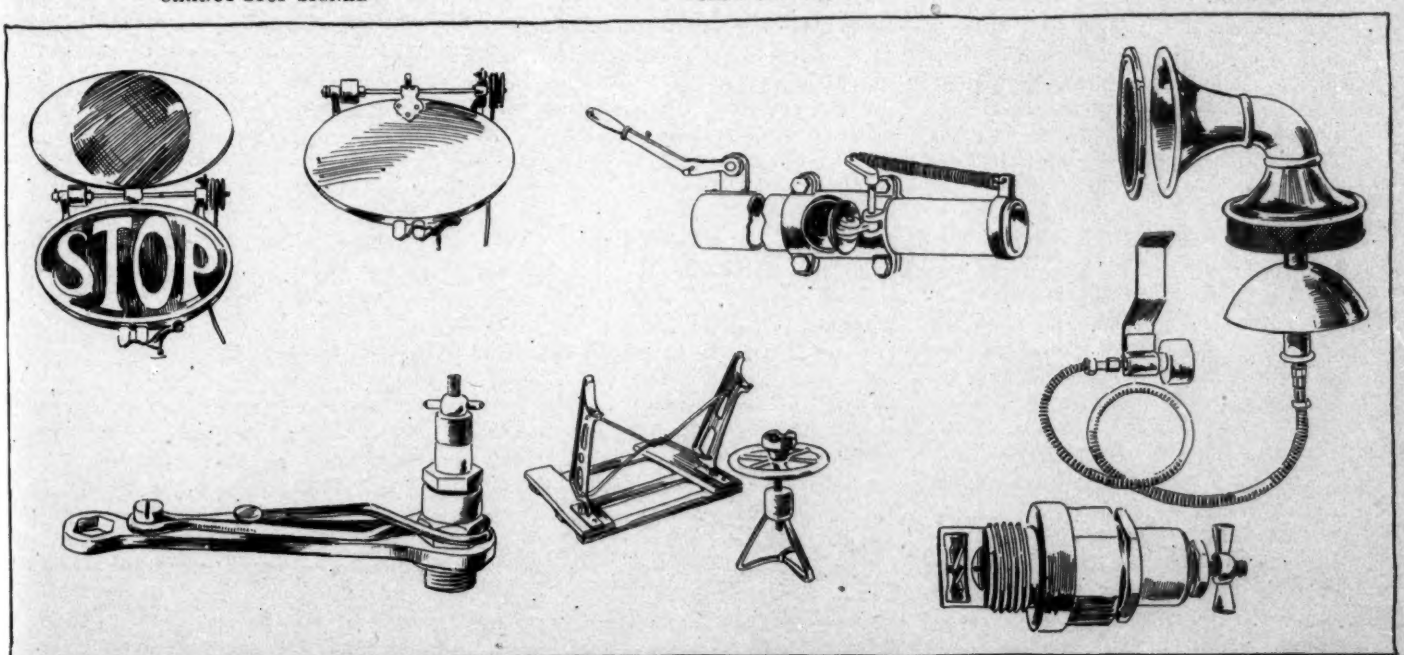
QUAKERS RENOVATING

Philadelphia, April 16—A prospecting trip along automobile row by the MOTOR AGE correspondent revealed the important fact that upwards of a half-dozen concerns have been compelled within the last fortnight to make alterations and large additions to their establishments. The demand for storage room is plainly greater than the supply, and at the present rate of sales car owners of this city will ere long be up against a problem in this respect which will call for instant action. The absolute limit of storage space must soon be reached, and as suitable downtown buildings are practically unobtainable there will be nothing left for the tyro at the game but to put up at a point far removed from his place of business until some enterprising concern realizes the possibilities and erects a huge public garage at some point not too distant from the center of the city's activities. Among the concerns in the hands of the hammer and saw wielders last Saturday were the Diamond Motor Car Co., at 2117-19 North Broad, which handles the Cleveland and Jackson cars; the National Automobile School Co., at Carlisle and Oxford streets, which has just acquired the agency for the Dolson; the Keystone Motor Car Co., which represents the Autocar; the Rambler branch and the Winton quarters. Besides these, the Locomobile branch has been worrying along with insufficient space for some time, and will put men at work as soon as it can be done without interfering with the business. Even the big White garage, the Quaker City Automobile Co., the Eastern Automobile Co. and other large concerns are crowded to the doors, and have been compelled to greatly enlarge their forces of machinists and cleaners to keep abreast of the demands of their patrons. Few of the row stores have been built with a view to economizing space, having been adapted to their present use with as little alteration as possible. The time is not far distance when the present one and two-story structures must be torn down, and modern plants especially designed for the storage of cars erected in their place for the use of the public.

CHANUT STOP SIGNAL

FUANT CUT OUT

DOUE SIREN

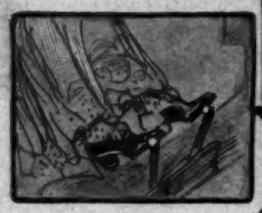


EVRARD PLUG HOLDER

RENWEZ'S JACKS

STRUEMPELL PLUG

STURTEVANT
The Car the FOOT CONTROLS



THREE pedals and the steering wheel are the four guiding and controlling elements of the Sturtevant 45-50 horsepower touring car built by the Sturtevant Mill Co., Harrison square, Boston. What more utopian dream of motor car simplicity could be concocted by the dreaming chauffeur or professional driver than a car which has not the much-handled change speed levers, a car which changes its own speeds, passing from the slow speed to the intermediate, then to the high, without the driver so much as knowing that the change is taking place other than by the increased speed at which he perceives himself to be traveling. In this car there is not any clutch pedal, a previously considered inevitable associate of the sliding gear transmission. Even the flywheel of the motor is discarded in this peculiar car. On the steering wheel the throttle and spark control finger levers are not found, the sole occupation for the driver's hands being the guiding of the machine by turning the steering wheel to the right or to the left as necessity dictates. Of the three pedals, one is pressed to throw in the reverse speed, another operates internal expanding brakes within the rear wheel hubs, and the third is termed a push button. It is not a push button or pedal but a tilting portion of the footboard on which the entire right foot of the driver rests. The regular brake and the throttle are controlled by this pedal. When the foot is lifted from it the throttle is closed, the spark retarded and the regular brake applied.

How comes this automatic control and in what portions of the car are the innovations? Five operations are automatically accomplished—throwing in the first speed, the second speed, the high speed and engaging and disengaging the clutches. All of these are obtained by the use of three multiple disk clutches which take the place of the flywheel. These clutches are engaged by governor weights attached to them. The clutch giving low speed has governor weights that are thrown out by centrifugal force. When the motor shaft is running at a speed of 300 revolutions per minute these weights force together the disks in the clutch and so lock the gears in the gearset into action, giving the low speed. When the motor speed reaches 500 revolutions per minute other governor weights that are of different sizes cause the second speed clutch to engage and springs throw the low speed clutch out, so the car, without change or noise, starts running on the second speed. When the motor speed rises still higher governor weights on the third clutch come into action and bring the direct drive into use and the second speed clutch is cut out. The gist of the automatic gear-shifting scheme is that the speed used in the gearset is directly according to the speed of the motor shaft. Up to the 300 revolutions per minute the motor runs idly. From that speed to 500 the slow speed is deemed most suitable; at 500 the second or intermediate takes hold, and at a higher limit the direct drive is most suitable. There is, however, a neutral position, so the motor can be run at any speed without the car moving. The speed of the motor is under the control of the spark and throttle, as is the ordinary gasoline motor. Therefore, should the resistance of the road over which the car is traveling cause a falling of the motor speed, such as ascending a hill, the changes in the gear will immediately follow, the car dropping from high to intermediate or perhaps to low speed. The same changes take place should the car be traveling on high speed over a smooth road with heavy load and a piece of rough road suddenly encountered. At such times the speed of the motor shaft can be accelerated, avoiding dropping to intermediate or low speed.

All the mechanism for this automatic changing from one speed to another is contained in the change speed or gearbox. From the part sectional drawing of it the method of this automatic changing of speeds can be followed. As previously stated, there is no flywheel, but the shaft A is the rear end of the motor shaft or crankshaft. This shaft ends in the large flange A1, and another shaft D, which will be called the mainshaft of the gearset, is placed end to end with the shaft A and its forward end is at the line marked D1. This shaft continues throughout the length of the case and terminates at the lines D2 in the rear of the case. Surrounding the rear end of this shaft is a sleeve M. Into the end of this sleeve is threaded the cap B and to this cap is attached the shaft running to the back axle, so the reader realizes that the power of the motor is transferred to the gearset through the shaft A and flange A1 and the power passes out of the gearset by this cap B. Naturally, the next step is a study of the various intricacies between the shaft A and the cap B, by which the several speeds are gained and the tracing through the case the course of the power for each of the three speeds ahead and for the reverse movement. F, H and K are the three multiple disk clutches which, owing to their size and weight, dispense with the use of a flywheel. F is the high speed clutch. When the governor weights bring it into action the car drives on the high or direct speed. H is the intermediate speed clutch and K the slow speed clutch. Consider first the slow speed drive. In this clutch are fourteen discs or plates. Seven white ones are attached to the bolt W, which is solid with the framework P, which revolves when the motor shaft A turns. Seven black ones are attached to the sleeve K1, which extends back into the gearset and carries, rigidly fastened to it, the small pinion K2. This pinion K2 is in constant mesh with a large gear K3 on the countershaft E, the gear K3 being locked so as to turn the shaft E when it revolves. On the shaft E is another gear F3, which is in mesh with a gear F2, which is secured to the shaft D. This gear F2 has on its rear side denfal face teeth that lock with similar teeth on the gear M1.

Note that the gear M1 is locked to the sleeve M, which carries the cap B, being a sliding fit on it. The course of the power, therefore, is as follows: The framework P being bolted to the flange A1 of the crankshaft revolves with and carries the governor weights Z, which, when the motor speed reaches 300, are thrown out at their forward end. Being pivoted on the pin Z3 the curved arms Z2 are pressed against the plate Z1 and the clutch engages. This causes sleeve K1 to revolve; with it revolves gear K2. This gear drives into gear K3, which drives the countershaft E and its gear F3. Gear F3 drives gear F2 on the shaft D and this

gear further drives gear M1 on sleeve M. So the power is transferred to the cap B and thence by shaft to the back axle.

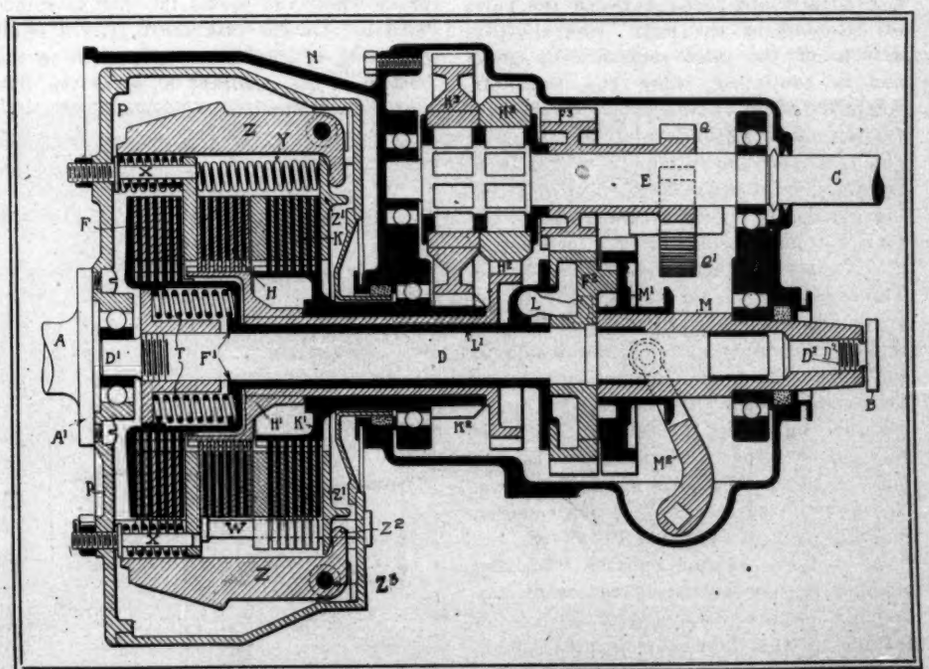
On the second speed the clutch H comes into use, being acted upon by a set of governor weights not shown in the illustration. The action of these is identical with that of the weights Z. This clutch has alternate sets of plates, one set being connected with the framework P and the other with the sleeve H1 which surrounds the shaft D and carries at its rear end the gear H2. This gear meshes with a gear H3 on the countershaft, and so the drive is then through the gears F3 and F2 to the shaft D, and then by gears F2 and M1 to the sleeve M and cap B, as before. In direct drive clutch F is required. Its action is identical with that of the other two. The governor weights bringing it into action are not shown. One set of its disks is connected with the piece F1, which is made rigid with the shaft D. Thus the drive is through the shaft D and gear F2 solid to the shaft, thence to the gear M1 and sleeve M and cap B. In reversing, the gear M1 is slid back through the arm M2 and the gear is meshed with an idler Q1, which is itself in constant mesh with a gear Q on the countershaft. The reverse speed is generally used when the low speed clutch is engaged, although there is nothing to prevent its being used with the intermediate clutch in engagement.

A few details of the gearset remain: The gears K3 and H3 on the countershaft are secured to the shaft by sets of silent roller ratchets, so the gears can revolve slower than the shaft. The gears are not out of mesh on the direct drive but are simply overrunning the shaft. The oblongs within the gears indicate these ratchet arrangements. A torque spring T is located within the high speed clutch and torque toggles L are used. In straightening out these toggles the bushing L1 is pushed ahead, which transfers the pressure to the spring T. This in turn disengages the clutch, permitting the motor to use all of its power on the intermediate speed when the road conditions are very bad. As soon as the torque is reduced by sufficiently improved road conditions the toggles slip back into their normal position, as is shown in the section. The motor resumes driving on the direct speed. The spring X is for disengaging the high speed clutch. Spring Y disengages the low speed clutch. The spring for disengaging the intermediate clutch H is not shown, it being on another portion of the clutch. These springs are duly proportioned in strength to disengage when a higher gear is being brought into action by the governor weights. The gearbox is an aluminum housing, a portion of which is shown at N. This part of the case is bolted at its forward end to the rear of the crankcase, so the rear of the case forms a front for the gearcase. In this way all of the clutches F, H and K run constantly in oil, as do all of the gears in the gearset. Hess-Bright ball bearings are fitted in three places for the mainshaft D and two places for the countershaft E. These bearings are held in place in the lower portion of the case by metal bands, thus permitting of the top of the case being removed, as shown in the plan view of the chassis. The power brake used for regular purposes is attached to the end of the shaft E at C.

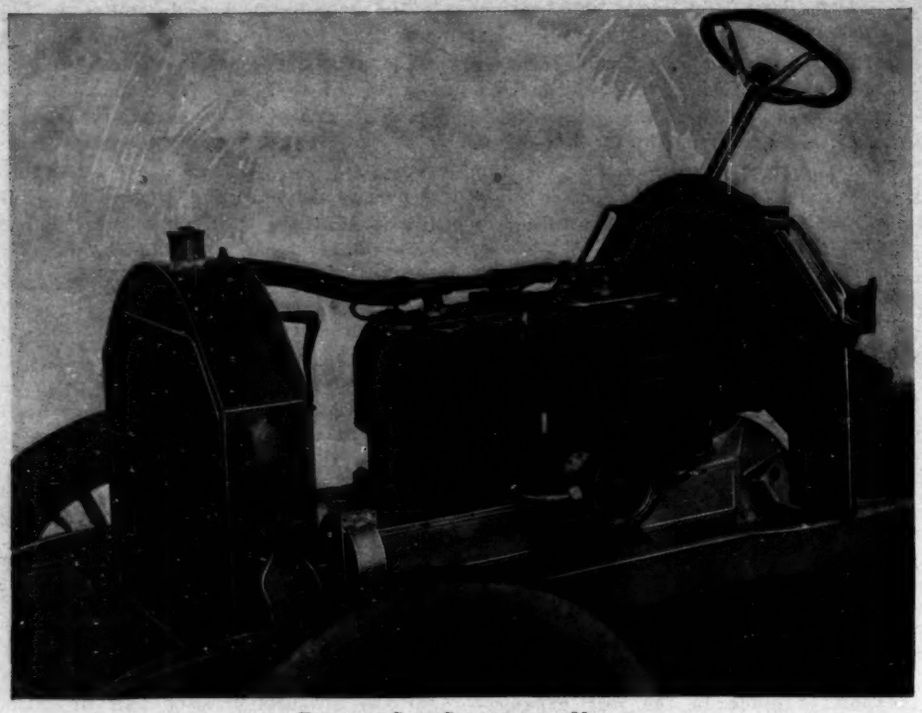
Passing to a general resume of the car, outside of the clutches and gearset, several original features are encountered. The motor, of the four-cylinder, four-cycle type, carries its cylinder castings in pairs with mechanical inlet and exhaust valves disposed in ports on opposite sides, a location which calls into service a pair of camshafts. The aluminum crankcase is of unique lines, as can be seen from the view of the exhaust side. The top part of the casing extends to the rear in an expansion, where it bolts to the front end of the gearcase, thus forming a chamber in which are carried the three clutches already referred to and described. Good support is given to the rear expansion by using radiating metal webs for reinforcing it. At the front end the crankcase is extended to form a covering for the two half-time gears, which are entirely within the crankcase instead of in compartments at the front of it. The bottom half of the case answers only as an oil receptacle, the three bearings of the shaft taking their support from the upper part of the case. Contrary to general practice where two camshafts are used, there are long inspection plates on the sides of the motor. These plates extend from the front to the rear of the case, are held in place by a set of small screws and when removed the camshaft can be easily taken out by removing the top part of the bearings at the front and rear ends.

The cylinder bore and stroke are 5½ and 5 inches respectively. Motor support is on a subframe which extends well to the rear of the gearcase. Glancing at the moving portions of the motor, it is noted that the crankshaft, of the typical four-throw type, is a nickel steel forging ground to size and runs on three phosphor bronze bearings, that at the rear end 6 inches long and 2¼ inches in diameter and with the remaining two 4 inches long and 2 inches in diameter each. The bearings in the lower ends of the connecting rods are 3½ inches long and 2¼ inches in diameter. The connecting rods are made in H-section; wrist pins are of hollow steel hardened and ground, carrying bronze bushings. The pistons carry the average quota of compression rings. Both sets of valves are opened by vertically acting pushrods. The valves have a useful diameter of 2 inches and are beveled on the seats to 40 degrees. Simple piping serves for the intake and exhausts, the valve ports being constructed so that one branch is sufficient for the intakes and another for the exhausts of each pair of cylinder castings.

Engine cooling calls into service a vertical tube radiator forming the front of the bonnet, a six-blade rotary fan, belt-driven from the crankshaft, and a rotary water pump carried on the crankcase at the left of the motor between the pairs of cylinders. The pump is of the double vane type. Drawing its supply from the base of the radiator, it delivers it through two tubings to the cylinder pairs. These tubings leave the pump chamber from positions diametrically opposite. From the cylinders the return flow to the radiator is by a single pipe with hose connections between the cylinder pairs and the front cylinder and the radiator. On the top of



VERTICAL SECTION OF STURTEVANT THREE-SPEED GEARSET.

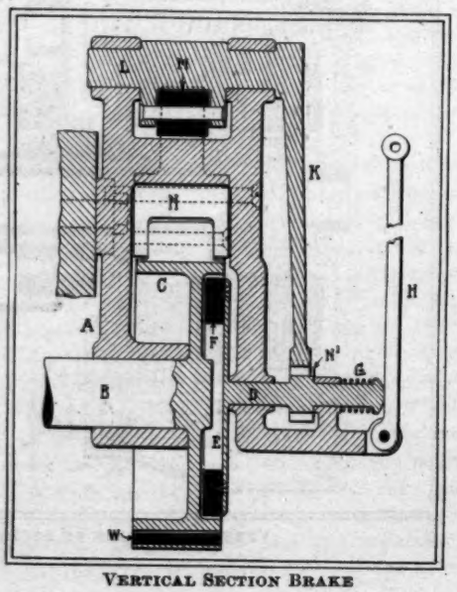


EXHAUST SIDE STURTEVANT MOTOR

each cylinder pair is a long oval plate held in place by screws, into which the pipe connections are attached. The large plate facilitates the cleaning of the water-jacket spaces. The pump is driven by gears from the exhaust camshaft. The gears, like all others on the car, are entirely encased. Valves are removable through capped openings in the tops of the ports.

Ignition is by jump spark with accumulators as the current source and a quadruple dash coil and LaCoste timer as the other elements of the system. The timer with its governor, which advances and retards the spark, is carried on the top of a vertical shaft rising between the pairs of cylinders at the left. This shaft is driven off the inlet camshaft by gears and is continued below the camshaft, where it carries the oil pump which cares for the entire motor lubrication. This oil pump delivers its oil supply to the three bearings of the crankshaft. The shaft being bored, the oil flows through it to the four bottom bearings of the connecting rods, which have channels in the inside. Through these channels the oil is forced up to the wrist pins, from which it flows into a containing ring on the inside of each piston and is finally distributed to the cylinder walls. On the dash is an individual sight feed to tell the driver if the oil is properly circulating. In the base of the crankcase is a splash system. The flow of the lubricant up the connecting rods is made possible by having the hole in the crankpin register with the channel in the connecting rod when the latter is on the down stroke, and so the inertia of the lubricant is all that is needed in forcing the oil up the connecting rods.

Passing next to a consideration of what the Sturtevant people term the power brake, which is the one used for regular service, another novelty of the car appears. From the sectional diagram and the view of the brake a general conception is possible. The shaft B is the countershaft of the gearset and carries the broad pulley C, which is the brake wheel. Bearing on the side of this brake wheel is a disk E with disk shoes F. This disk is on a shaft D and has a coil spring G for ordinarily holding the disk shoes away from the pulley C. The lever H has connections with the controlling pedal of the car. An inward movement of this on the shaft D forces the disk E against the brake wheel and causes the disk to rotate with it. On the disk shaft D is a small pinion N, which meshes with teeth on the bottom of the quadrant K, so as the disk starts rotating the quadrant is carried slightly to one side if the car is going ahead and to the other side if reversing. This quadrant is supported on a camshaft L carrying a cam M. The cam works between the upper ends of a pair of levers that are hooked to the brake band which surrounds the wheel C, and as the cam M acts on these arms the band W is tightened regardless of the direction of the wheel C. The brake is thus a simple band brake with the band tightened by the rotating pulley C. As the lever H is forced inwards the friction of the disk E on the wheel C increases and there is a corresponding brake action. A very slight pressure of the lever H engages the brake. The emergency brakes have been mentioned.



VERTICAL SECTION BRAKE

Glancing at the running gear and framework of the car, such points as pressed steel framework of channel section, worm and sector steering gear, 34 by 4½-inch tires front and rear, 120-inch wheelbase, semi-elliptic springs 35 inches long in front and 56 inches in length in the rear, and floating rear axle are noticed. The side pieces of the frame are offset alongside of the motor. They have a central depth of 4½ inches with a front and rear taper. The channel crosspieces of the frame are made with integral gusset plates. The front axle is of tubular construction. The shaft connecting the gearset with the differential in the back axle carries two universal joints and is relieved of strain by a spring-supported torsion rod.

The body, of typical 1906 lines, is designed with curves. The side entrances are easy curves at the bottom, the top of the rear seat is slightly higher than that of the front one and the bonnet is rounded on top and made severely plain. Front fenders are of the mud-proof variety. The rear ones are small and the running board is of the metal style. A low, straight dash is used, its only decorations being the coil and a solitary sight feed, plus a switch.

Lastly, the control of this car: To ease in starting a two-thirds compression relief is fitted which is obtained by slidably mounting the exhaust camshaft. Running to the front of the motor is a short pullrod for sliding the camshaft. A touch of this rod returns the camshaft to its proper position. With the motor started the next step is the starting of the car. The spark governor is set to run the car at 250 revolutions per minute, so there is no possible danger of the car starting forward by means of the low speed clutch in the gearset coming into action. A pressure on the control pedal cuts out the governor and the spark is advanced and throttle opened, the motor speeding until it reaches 300, when the low speed clutch operates, after which the intermediate and direct drive clutches take up the drive at the predetermined motor speeds. In stopping, a release of the pedal reduces the motor speed and with the foot raised from the pedal the power

brake is applied. Should the emergency brakes be needed they are at hand. The reverse is pedal-operated. MOTOR AGE representative has not had an opportunity of testing the running of the Sturtevant car on a country road and cannot vouch for the car's action when partly stalled in a wet place, but as the owners have been operating the machine for several years it is certain that the car is capable of taking care of itself in such emergencies.

MOTOR CAR LITERATURE

The National Motor Vehicle Co., Indianapolis, Ind., has in circulation a little booklet containing fifty-eight letters from users of last year's National cars.

Under the heading of "Motor Car Reliability," the Pungs-Finch Automobile Co., Detroit, Mich., tells in an interesting manner the story of a trip in a Pungs-Finch car from Detroit to New York. The story with illustrations occupies eight pages.

In the present catalogue on the Matheson car issued by the Matheson Motor Car Co., Wilkesbarre, Pa., three views of the car, four of the chassis and four of the motor, besides a couple of page illustrations of the company's 5-ton truck, comprise the picture part of the book. These illustrations are large and very clear. The information given on the car is lengthy and definite; the actual size of bearings, shafts, gears and other parts being given. Special attention is devoted to the make-and-break system of ignition.

The Thomas model XXI, made by the E. R. Thomas Motor Co., Buffalo, N. Y., is the subject of an excellent catalogue of large size. Of the many illustrations one, showing a group of the many motor parts, another of the dissembled clutch, a third of the operating connections, a fourth of the gearset and others of the bearings, steering gear, axles and rear hubs are specially good. The artistic is not forgotten. Each page has a quarter margin

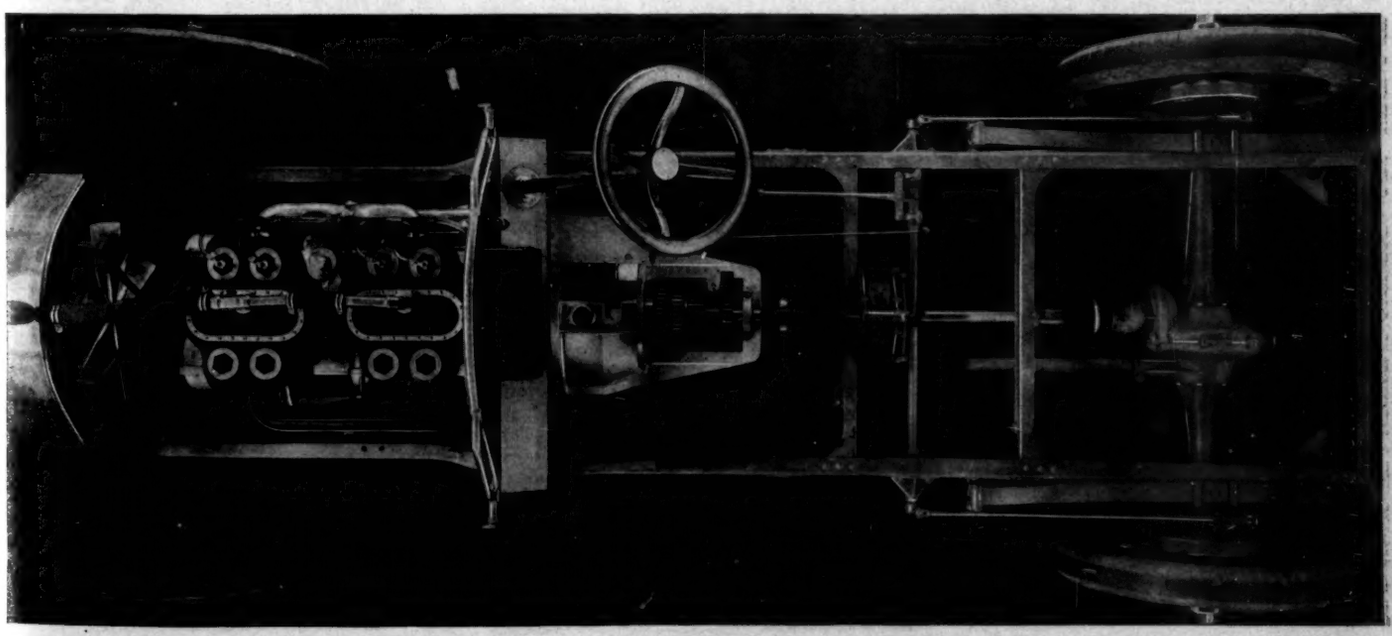
STURTEVANT POWER BRAKE

on the outside in which the topics of the paragraphs are given. The description is specially profuse, giving details of the minutest parts.

Seven styles of bodies fitted to the Packard 24 chassis this season are the subject of an eight-page folder now being sent out by the Packard Motor Car Co., Detroit, Mich. The body designs shown are runabout, runabout with top, touring car with victoria hood, touring car with extension top, touring car with canopy top, limousine and landaulette. The only information given on each is the price.

A most useful book for motorists who anticipate touring abroad in France, or Germany, and for those interested in foreign machines is "Krausz' Practical Automobile Dictionary." As its name implies, it is a dictionary of automobile terms. The book is divided into three parts, the first with English names of motor parts or terms applying thereto arranged alphabetically and with the French and German meanings in opposite columns; the second part with the French arranged alphabetically with English and German meanings and the third with the German in alphabetical order, followed with English and French. Over 12,000 technical terms are used. An appendix contains the custom reglations for the many European countries, cable rates from New York to foreign countries, United States consulates in Europe, metric weights and measures, comparative tables of linear, liquid, surface and cubic measures, and approximate values of foreign coins. The book is bound in full black leather, is in pocket size, contains 130 pages and is published by Frederick A. Stokes Co., New York city.

The "1906 Handbook of Gasoline Automobiles," as issued by the Association of Licensed Automobile Manufacturers, with offices at 7 East Forty-second street, New York city, is off the press and is being distributed to the members of the association. The book follows the same layout and design as its two predecessors, having on each page the photograph of a car and such facts about it as: model, body, color, seating capacity, weight, wheel base, tread, tire dimensions, steering, brakes, gasoline capacity, frame, horsepower, number of cylinders, arrangement of cylinders, cooling, ignition, drive transmission and speeds. The printing is in two colors, red and black. In the front pages of the book is given the names of the officers and members of the association and following this is an alphabetical index of the makers and cars. Thirty-nine members are mentioned and the many models made or sold by each firm are illustrated. In all 132 different cars are shown. The book is an excellent guide for prospective buyers, or persons in general who are interested in motor cars. The book will be sent to any address on receipt of 10 cents to cover postage. The illustrations of the several cars are of half-page size, a fact which, coupled with the excellence of the paper, gives a fine conception of the cars.



TOP VIEW OF CHASSIS OF STURTEVANT LEVERLESS TOURING CAR

LEGAL LIGHTS AND SIDE LIGHTS

JERSEY BILL PASSES

With many of its more objectionable provisions toned down, but still radical enough to meet with the disapprobation of the majority of the automobilists, not alone in New Jersey, but in New York and Pennsylvania as well, the Frelinghuysen automobile bill passed the assembly by a vote of 35 to 0 April 11 at midnight, after a 6 hours' fight. The measure as passed bore little resemblance to the bill introduced by Senator Frelinghuysen months ago, and the chopping it received in the last hours of its progress toward final passage was something unique in the matter of legislation at Trenton. The signing of the bill by the governor on Friday makes the law effective on July 1, as provided by section 41.

The opponents of the bill fought up to the last ditch with vigor. Barber, of Mercer county, was quite outspoken in his denunciation of the measure as it came from the senate, and even in its present form, he said, it was far from satisfactory. It was no improvement over the present law, and he predicted that after a year's experience there would be a rush to repeal it in favor of a more sensible and less radical law. Barber's strictures precipitated a verbal row, which lasted many minutes and was only ended by the insistent calls for "Question," which brought on the vote. The fight on the inspector's section, which called for twenty-one of these officials, was exceptionally bitter. An attempt was made to strike out the entire paragraph, but it was frustrated, and a compromise on seven inspectors was agreed to. The opposition argued that the appointment of these inspectors would be the opening wedge for a state constabulary, to have cognizance over not only automobiles and their operation, but over every branch of official work which the ruling party and a horde of hungry place-seekers could suggest. The local officials, it was argued, could attend to infractions of the law in their respective bailiwicks. Besides, there was the expense. But when Bierck, who had proposed the seven inspectors amendment, said the bill would bring in from $50,000 to $60,000 revenue annually the automobilists' friends threw up their hands, and the amendment went through, 33 to 19.

Efforts to strike out the provision requiring owners residing outside the state to file with the secretary of state an instrument constituting that official and his successors in office attorneys upon whom processes may be served in legal proceedings were also unsuccessful, and the provision stands as in the original draft. The chain-grip prohibition also stands. So does the two white and the one red lights at night. The minimum age limit for licenses was reduced from 18 to 16; but a trial trip, to show the inspector that he knows how to handle his car, will not be required of the applicants. The salary of $1,500 per annum for the commissioner of motor vehicles, who will be the assistant secretary of state, means a nice little plum for that official, for he is empowered to appoint an assistant, at the same salary, to do all the work.

Registration fees for cars of less than 30 horsepower will be $3 a year, and $5 per annum for those registering 30 horsepower or more. Drivers' licenses in the first case will be $1 a year, and in the high-powered cars $2. The requirement prohibiting a licensee from using the roads of the state unless he has his license in his pocket was knocked out, as was also that requiring each licensee to furnish a photograph of himself to attach to the license. Identification will be by means of comparison of signatures, the licensee being compelled, when requested by an inspector, to write his name in the presence of that official, who will compare it with the signature indorsed on the license.

Insertion of the word "knowingly" in two places in paragraph 4 of section 22 makes the verbiage clearer in that the driver must have knowledge that he caused an accident before being required to comply with its provisions. Another amendment to the same paragraph relieves the driver of the necessity, in case of accident, of giving the names of the women in the party, the provision now applying only to males.

An amendment to section 23 increased the maximum legal speed at crossings in the open country from 5 to 4 minutes to a mile. The same change was made in the paragraph relating to meeting equines on the highway. Local police authorities are given authority to aid in enforcing the law, recorders and magistrates being given the power to issue warrants, within 30 days after the commission of an offense, for the arrest of the culprit, who may ask for an adjournment of the case for 30 days, giving bonds for his appearance; automobiles being accepted in lieu of other security. Arrests may be made without a warrant, and failure to show license certificate is punishable by a fine of not more than $25. Warrants or summonses issued by any magistrate are valid throughout the state, and arrests in such cases may be made at any time or place.

That portion of the bill which has to do with the punishment of law-breakers was almost entirely rewritten. All minimum fines were stricken out, thus giving magistrates a chance to deal leniently with operators who may have erred through ignorance or unintentionally. Racing will cost the offender $100 fine, with 10 days' imprisonment in case of failure to pay. The same penalties are provided for where operators fail to register or to display numbers on their cars. The display of fictitious numbers will cost $500, or 30 days. All these punishments are doubled for a second offense. The proceeds derived from the license fees and fines are to go to the improvement of the roads after the expenses of the department have been paid, except that $3,000 annually will be devoted to the erection of guide posts, warning signs, etc., throughout the state.

AFTER 'EM IN PITTSBURG

Pennsylvania's new director of public safety, Frank Ridgeway, who has been for years the United States weather man in Pittsburg, has taken an aggressive attitude, fully sanctioned by the Automobile Club of Pittsburg, in regard to reckless chauffeurs. Easter Sunday he posted 6-foot policemen in plain clothes on all the principal driveways to time automobiles. Every officer had a stop watch and orders to arrest any violators of the speed ordinances without delay. Director Ridgeway has given fair warning through the press that he will prosecute to the fullest extent any motorist who is guilty of speeding or of ungentlemanly conduct on the streets or boulevard. His action has been warmly applauded editorially.

CHAFFEUR TO BLAME

A judgment has been pronounced in Paris by M. Fernand Lecomte, by which the proprietor of an automobile who was summoned for the fact that his chauffeur had allowed smoke to escape from the muffler, was totally exonerated, the judge contending that as the chauffeur alone could control the escape of smoke, it was ridiculous to make the owner responsible. The owner in question was M. Charron, of the C. G. V. firm.

MOTOR CAR AS CONSTABLE'S AID

LeGrand, Cal., April 13—In the little town of Los Banos, in Merced county, is a man by the name of Mace Roberts, the constable of the town and neighborhood, who uses an automobile for transferring prisoners from his district to Merced, the county seat, 42 miles distant. Before getting the automobile it took 2 days' time to cover the distance by team, and the expense of stabling a livery team over night and hotel accommodations amounted to more than $15, which amount the county allowed for each prisoner. As there were about sixty trips made during the year, Mr. Roberts figured on a quicker and cheaper way of transporting the prisoners to the jail.

The county, of course, would not buy an automobile, but Roberts went ahead and bought a popular runabout with what spare money he had and began covering the 84-mile trip, including return, in 1 day. Instead of paying two-thirds of the amount collected for each trip to the livery stables he retained it for himself. At first, there was nothing said by the livery people; they expected him to have trouble, then they would have good reason to make a complaint. As Roberts was a machinist and worked at his trade in his shop when not attending to official duties, he was able to keep the car going at all times and there has never been a time that it failed to do its part when carrying a prisoner.

The stable men made a protest when things ran so smoothly for the constable, and requested the supervisor of their district to make application before the board of supervisors of the county to make a change in the rate paid for transporting a prisoner to the county seat. They stated that the present price was entirely too much; that before the advent of the automobile it was all right when horses were used and 2 days' time was required. The supervisor was wise enough not to want to bring such matters up before the board, but as two livery stables and one hotel were losing money by the new mode of transportation and their pull amounted to a great deal in politics, he put in the protest which went by the board.

When election drew near, however, the stable men put up a hard fight and got all the farmers possible to support them in electing a new constable. Roberts realized his situation and made friends with all he could by giving rides to every man, woman and child that would go with him. No one was allowed to walk or go by while going his way if it were possible to carry them. He even made a rear seat which he used to carry friends, and an extra prisoner when necessary. He made it a policy to treat the farmers with every consideration. When the smoke of election day cleared away, Roberts was found to be elected by a handsome majority and may be seen nearly every week making his 84-mile trip in his runabout.

When asked if he had ever had any serious trouble with the car while out with his prisoners, he answered, "Never had anything more serious than a punctured tire. I have had trouble and had to be towed twice, but, strange to say, I never had anything very serious happen while conveying a prisoner."

"Did any of your prisoners ever try to escape?"

"Yes, one time a boy about 17 years old tried to get away. I do not know where he came from, but he knew how to run the same make of car as mine. He was arrested for stealing something at the railroad station, and I was taking him over to Merced. I was sorry for the fellow and told him I hated to see a boy sent to jail and advised him to try to do better thereafter. This seemed to have encouraged him to try to make an escape, for he took the first opportunity to do so.

"I left him in the seat at one side of the road with the motor running while I was leading a friend's horse past. I should not have left the motor running, but my friend wanted his horse to get used to it. I spent some time with the horse, petting him and talking to the owner, and was some distance from the car when all at once I saw it moving off. At first I thought the boy had accidentally thrown the clutch in. I ran as fast as I could toward the car, but soon saw that my prisoner knew how to handle it and was sending it down the road as fast as it could go. I shot toward him four times to scare him, but it did no good. I think I could have shot him but did not want to kill him, as it was a petty offense for which he had been arrested and he evidently came from a nice family.

"My friend saw the predicament in which I was placed, immediately turned his horse around and we started in pursuit. We did not expect to catch him unless something happened to the car or fortune favored us some other way. We followed up at a good speed but the car was slowly disappearing in the distance. This occurred in Miller's field, and there is about a 20-mile stretch of road without a house in sight. In fact, there are only three houses between Los Banos and Merced, or until you get near Merced. I suspected the boy would leave the car and take to his heels at the first opportunity when he was out of sight of us.

"We were just beginning to think our case a hopeless one when the horse started to run and we heard a whirr and buzz and the toot of an automobile horn behind us. I turned to look back and there saw a White steamer. It slowed up to pass us; I jumped out, showed my badge and told our story. There were two men in the big car and they told me to get in the tonneau and we would give the thief a chase for his life. The operator opened up the throttle and it shot ahead like the wind. My little car was not geared high, as I had put on a big rear sprocket for going through sand and it could not go faster than 20 miles an hour at the best.

"The thief was still in sight when we commenced the chase with the steamer and it was not long before we could see plainly that we were gaining and in less than 15 minutes we were within half a mile of the fugitive. No doubt he had failed to notice us until then, for he immediately stopped and left the machine, climbed through the wire fence of the lane and started through the field afoot on a run. We took in the situation at once and could see that if we went where my machine was standing we could not cross a ditch to get into the field that he was scurrying across. At the place we were then we could, so jumping out I cut the four wires of the fence with my pliers which I always carried in my coat pocket, and we gave chase across the salt grass that grows more or less in little bunches like bunch grass. Between the squirrel holes and ruts it looked as if we would wreck the big car, but the operator was heart and soul in the chase and it was not long until we were near enough to call the young man, who, seeing the hopelessness of the case, stopped and waited for us.

"That was the only time I ever had any trouble like that. I guess the comparative ease with which we overhauled the fugitive had a moral effect upon others, or maybe none of the other prisoners knew how to operate an automobile. At any rate, it's been easy sailing since that time. The people around here are now thoroughly convinced of the practicability of the automobile, particularly when it applies to a constable's business."

"THE total cost of the motor bus run on such a large scale, including both the renewal of tires and vehicles and interest and sinking fund on the capital invested, amounts to no less a sum than 20.172 cents per car mile and if we add to that interest and sinking fund on the purchase price of the old horse tramway undertaking, a further amount of .848 cents per car mile must be added, making the total cost per car mile 21.02 cents. Against this the income amounts to only 15.684 cents per car mile. This is equivalent to $181,144.52 per annum, being nearly 25 per cent of the total working expenses, or nearly 30 per cent of the gross receipts. From this it is evident that a system of motor buses run under prevailing conditions could only be a financial failure."

In these words is summed up the opinion of E. Manville's paper read before the Automobile Club of Great Britain on the relative merits of motor buses and tram cars or trolley cars, for use in cities having a population of approximately 228,000.

In Great Britain as well as in Paris and other European cities the great problem of whether the electric trolley car or the motor bus is more suitable for street transportation is the live topic in municipal transportation circles. In all of these cities the overhead wire for trolley cars is not allowed in the heart of the cities; neither is the laying of iron rails for tracks permitted in many of the streets; nor is the congestion consequent upon the use of trolley cars on some of the busier streets allowed. Therefore the trolley systems are, owing to these restrictions, prevented from operating in the business centers. Consequently, there is in these cities a central zone in which other schemes of transportation have to be used. In the past the horse bus has reigned supreme. Within the last couple of years the gasoline motor bus has been the invader and now in London, while the horse bus is present in innumerable numbers, still the people prefer traveling in the motor bus. The horse bus takes those who cannot find room in the motor bus seats. As a result of this landslide to the motor bus numerous lines have been established in many of the big cities and it has looked for a matter of 6 months as if the horse bus was doomed. This is not exactly the case. The opening paragraph shows that while the motor bus has been carrying all the passengers it can accommodate, still it has not been operated successfully and many prominent in city transportation are the authority for the statement that not a single line of motor buses in Great Britain is running on a paying basis.

The opening extract from Mr. Manville's paper at first sight appears as if a knockout blow is being or is soon to be delivered to the motor bus abroad, but the real conditions are not so serious. In another column is shown the balance sheet for the operation of motor buses in a city of a population of 228,000. The figures are not compiled from the books of any company that actually was doing business, but have been compiled by a consulting engineer of an electric trolley system and yet an engineer who is a director of a large gasoline motor car building concern. His figures have been conscientiously arranged, but not taken from actual practice. He tried to take them from companies now using such machines, but these companies in every case considered the figures business secrets and were unwilling to make them public. In glancing over these figures the tire expense looms up at a cost of 4 cents per car mile, amounting to 20 per cent of the gross operating expenses. Compared with it, gasoline costs but 2 cents per car mile, just half, and repairs and maintenance amount to but 1.1 cents per car mile. The estimated cost of 21.02 cents per car mile per year for operation is made up as follows: Repairs and maintenance, 1.1 cents; gasoline, 2 cents; total amount of working expenses, 11.252 cents; interest and sinking fund capital, 1.32 cents; tire renewal, 4 cents; depreciation of the vehicles per year at 20 per cent rate, 3.6 cents, and interest and sinking fund on the purchase price of the old undertaking, meaning the cost of the franchises bought before the line was started, .848 cent. The income from the road is based on the actual traffic carried by trolley cars in similar cities and is reckoned that each of the 228,000 population makes 114 trips per year. This gives an income of 15.648 cents per car mile or 4.33 cents per car mile less than the cost of operation.

This state of affairs is probably largely accounted for by initial lack of experience, bad purchases, unduly heavy repair deals, etc. But there it is. However, for what it is worth and being the only thing of its kind yet published Mr. Manville's balance sheet is given by which it will be seen that although carrying very nearly 26,000,000 of passengers on 140 cars a loss of $180,005 is registered as the result of a year's working. It is as follows:

Balance sheet for motor buses:

CAPITAL ACCOUNT		
140 motor buses at $4,383 each		$613,620.00
Car depots and offices		233,760.00
Equipment and workshops		48,700.00
Total		$896,080.00
EXPENDITURE		
	Average per car mile (cents)	
A.—To traffic expenses—		
Superintendence	.074	$ 2,508.58
Wages of motormen and conductors	3.894	132,106.18
Wages other traffic employes	.37	12,513.64
Oiling cars	.56	18,989.53
Ticket check, including wages inspectors and clerks	.298	10,128.66
Uniforms and badges	.168	5,729.51
Clearing and fuel, lights and water for depots, etc	.8	27,127.90
Totals	6.164	$209,104.00
B.—To general expenses—		
Salaries of officers and staffs	.136	$ 4,582.46
Store expenses	.092	3,082.08
Rents	.036	1,229.45
Rates and taxes	.556	18,883.88
Printing and stationery	.038	1,284.99
Fuel, light and water for offices	.006	225.50
Law charges	.004	140.29
Compensation, fire and other insurances and miscellaneous	1.12	37,958.00
Total		$ 67,386.65
To repairs and maintenance	1.10	$ 36,300.79
To power expenses—		
Gasoline	2.00	67,819.76
Total working expenses	11.252	341,541.45
Interest and sinking fund capital	1.32	44,716.04
Renewals—		
Tires	4.00	135,639.52
Vehicles, 20 per cent depreciation	3.6	122,331.00
Interest and sinking fund on purchase price of road	.848	28,733.00
Income	21.01	713,006.09
Loss on year's working	5.336	181,147.72
INCOME		
By passenger traffic—25,890,030 passengers carried	15.526	526,500.57
Sundry revenues	.148	5,357.00
Total		$531,857.57

Naturally every motor bus manufacturer and motor bus engineer expresses disapproval and disbelief in Mr. Manville's figures, but none of them could produce anything wherewith to counterbalance their unanswerable logic. The fact of the matter is the motor bus design is altogether in an experimental condition and up to the present the most costly forms of the ex-

periment have been exploited. There are no less than six types of motor bus running in the streets of London—No. 1, a steam bus on the Clarkson principle, which many think is going to have the best of the battle with the gasoline bus. Of gasoline engines there are five types—No. 1, chain-driven; No. 2, gear-driven by internal toothed gear in driving wheels; No. 3, gear-driven by propeller shaft; No. 4, gear-driven by de Dion live axle, and No. 5, gear-driven by worm pinion gear, and it cannot be said that any of the gasoline buses has shown to much advantage over its fellows. Engineers not in the motor movement declare this to be caused by bad workmanship and material, but these do not know the problem which is so bound up in the question of weight. One thing that the motor bus is certain to do is to direct public attention very shortly to the possibilities of the commercial business automobile, as yet no exploited. Here again, however, the chief drawback is the impossibility of obtaining figures as to cost of running and upkeep, without which British commercial men will not move. They know what their horse traction costs them, and they can allow for it and until they know what motor traction will cost they will remain with the horse. And unless some satisfactory figures are produced before the motor bus boom which is now on bursts, it is probable that the light commercial vehicle will suffer from the exposures which are certain to follow the discovery that the motor bus has not been a financial success, despite all the bluff.

CLOSES BIG ORDER

The Rapid Motor Vehicle Co., of Pontiac, Mich., has just completed arrangements by which it will furnish a number of 20-passenger sight-seeing motor cars to the American Sight-Seeing Coach Co. This organization controls sight-seeing enterprises in New York, Boston, Philadelphia, Washington, St. Paul, Kansas City, Denver, Salt Lake City and many other principal cities. Its methods of transporting its passengers include boats, trolleys and automobiles, and as its activity extends over every part of the country, it will undoubtedly use a great many of the Rapid motor cars during the following season.

MOTOR PLOW COMPETITION

American farmers will be interested in reading of two motor plowing competitions recently held in England, in which the Ivel was most prominent. One match took place in Cheshire and the motor hauled a three-furrow plow and also drove a threshing machine. The weather conditions were anything but favorable, a heavy storm prevailing at the time. The other affair was held in North Wales over land that was extremely heavy and wet. Despite the conditions, the Ivel did the work of six horses in pulling a three-furrow plow and later drove a threshing machine.

COMMERCIAL MILE STONES

Looking Ahead—The board of public service wants the city council of Toledo, O., to set aside $3,000 for the purpose of purchasing two automobile patrol wagons.

Going in for Gasoline—The Columbus Buggy Co., of Columbus, O., builder of electric pleasure carriages, is soon to bring out a gasoline delivery wagon. If the vehicle proves satisfactory it is the intention of the company to push the manufacture of them.

Missourians Act—The St. Louis Automobile Service Co., St. Louis, Mo., organized to operate a line from the terminus of the Broadway line to the Field Club grounds ,and probably to other points in St. Louis county, filed articles of incorporation at Clayton. The capital stock is to be $5,000.

Car for Charleston Chief—Fire departments of the larger American cities are beginning to appreciate the importance of the automobile in their work, recognizing their ever readiness and speed. The city of Charleston, S. C., has purchased from the Olds Motor Works a touring car which will be especially equipped with two Babcock fire extinguishers, and will be used by the chief of the fire department.

In Old Kentucky—An automobile service has been started between Lexington and Richmond, Ky. One car is running on the route at present. It carries fourteen passengers and 2 tons of freight or baggage. But one trip daily is being made at present. The car leaves Richmond at 7 a. m., arriving at Lexington at 9. Returning the car leaves at 4 p. m. and makes the run in 2 hours. About the middle of this month a second car will be added, when two trips each day will be made, the cars starting from opposite ends of the line.

Helped by Strike—On account of the pulling off of trains because of the coal strike, Muskegon, Mich., will probably have automobile connections with several towns to the north this summer. Merchants have become interested in a project to run an automobile stage line to Pentwater, taking in the villages of Montague, Whitehall, Rithburg, Mears and Hart, and it is more than likely that the project will be carried through. Because the Pere Marquette railroad has pulled off a morning train there is practically no connection with these towns until late in the afternoon and the automobile stage line is expected to fill a long-felt want in this direction.

O. K.'d by Uncle Sam—The postmaster of Detroit, Mich., has secured permission from Washington officials to install automobiles for the collection of mails. A contract has been entered whereby Oldsmobiles will be used.

Likes the Logan—The Kroger Grocery & Bakery Co., Cincinnati, O., which operates sixty-eight grocery stores, has, after giving its air-cooled Logan delivery wagon a severe test, made a saving of 42 per cent on its horse delivery work. The Logan wagon is made by the Logan Construction Co., of Chillicothe, O.

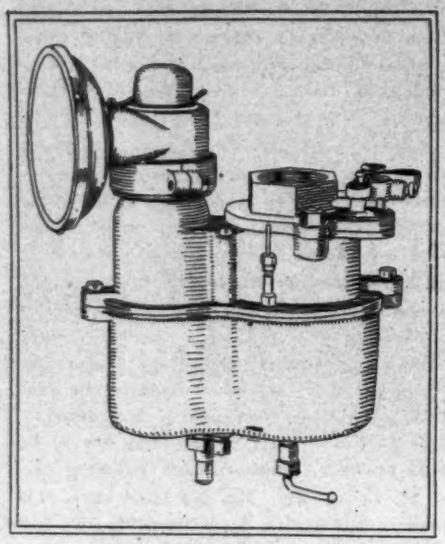
Waverley Orders—The Pope Motor Car Co.'s Waverley electric department, Indianapolis, Ind., has nearly completed a fleet of ten electric trucks that are to be used by the Anheuser-Busch Brewing Co., of St. Louis, Mo. Besides these cars, this concern has sold a 3-ton truck to the Lee Brown Co., Boston, Mass.; a duplicate of this to the Consolidated Gas Co., of New Jersey; a delivery wagon to a Reading, Pa., firm, and a 3-ton truck and delivery wagon to the Birmingham Gas Co.

Bulgarians Buying—European merchants are awakening to the possibilities and importance of the horseless carriages in the commercial world of today. Even Bulgaria, a country which has not made the great strides that have been made in other parts of the old world, is beginning to appreciate the value of this modern mode of conveyance. The Olds Motor Works has recently shipped to the city of Barna, Bulgaria, a number of eighteen-passenger wagonettes and delivery cars.

Terre Haute Twentieth Centuried—Terre Haute, Ind., is soon to have an automobile service. The installation of the proposed motor car line has arisen out of the action of the Terre Haute Traction & Light Co., to run an extension of its present system on streets not selected by the people. Should the motor line go through it will assume the form of a loop. The proposition is to run two cars in opposite directions. A stop will be made at each corner and a 12-minute schedule maintained.

Farmers Interested—The Brennan Motor Co., of Syracuse, N. Y., is making an engine for an automobile combined harvester and binder for Dunning Brothers to be used in their grain fields in California. It is a four-cylinder, 32-horsepower machine and will run a harvester that has been operated with twenty to thirty horses. It has a governor to maintain a uniform speed. It has a clutch, 12-inch pulley, 8-inch face to allow the binder to be stopped without stopping the engine. The cylinders are 5 and 4-inch bore and stroke and the engine weighs 600 pounds. It consumes 15 gallons of gasoline in 10 hours and runs from 800 to 1,000 revolutions per minute, crankshaft speed.

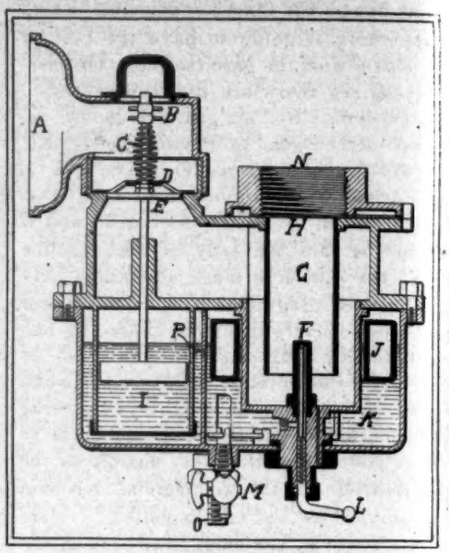
VARIOUS NOVELTIES IN CARBURETERS



MENNS CARBURETER

MENNS CARBURETER FEATURES

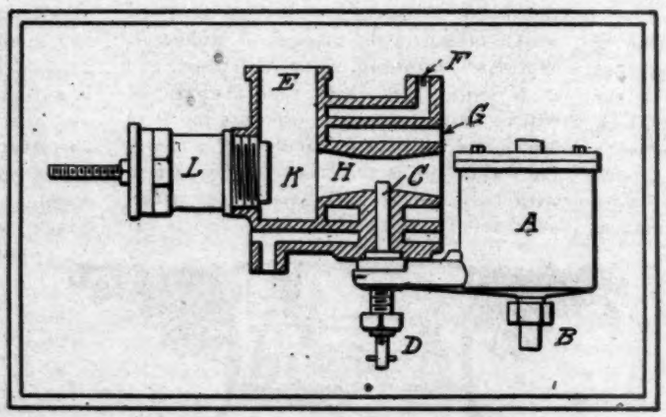
Air enters the Menns carbureter through a large funnel-shaped opening A which is protected by a screen diaphragm for excluding dust particles and other foreign substances. The course of the air through the carbureter is indicated by the air passages. After entering it is directed downward, where it passes the compensating air valve E. Then it continues down around the bottom of the facing of the mixing chamber G and, rising through this chamber, passes close to the tip of the spraying nozzle F. Finally passing the throttle valve H it exits through the opening N through pipes to the motor. In the compensating air valve which controls the entrance of every atom of air entering, the feature is that its opening is restricted by the coil spring C surrounding the upper part of the valve stem and that the regularity of its opening and closing is partly under the control of a piston on the lower end of the stem, this piston working up and down in the dash pot I. Ordinarily the latter is nearly filled with gasoline, which enters from the float chamber through the small opening P in the partition separating the two chambers. The ease with which the valve E opens and closes is according to the tension of the spring C, which can be varied by loosening the nut and locknut B at the top of the spring. The base of the spring rests on an arched support D above the valve. The piston in the dash pot I is an easy fit and prevents the valve E fluttering, thus giving it a positive opening and closing movement. In starting the carbureter this dash pot is first allowed to fill with gasoline to the level shown; after this it maintains a level as high as the opening P and higher when the level in the float chamber is higher. In the regulation of the flow of the gasoline, it is noted that this liquid enters at the opening O in the base of the float chamber K. This opening is intended to be practically 6 inches below the bottom of the gasoline tank. Close to O is a drain cock M. The float chamber K is of cylindrical design and carries a circular ring float J, which surrounds the lower portion of the mixing chamber, which occupies the upper central part of the float chamber. In the center of this chamber is the needle valve L, within the spraying nozzle F. This valve is readily adjustable from the outside. When operating the suction of the engine opens the valve E, only slightly when running slowly, but on faster speeds this valve will remain partly open all of the time. This suction also draws the gasoline out of the nozzle F. The only control while running is by the throttle H. The carbureter is manufactured by the Boston Mechanical Co., Boston, Mass.



SECTION OF MENNS CARBURETER

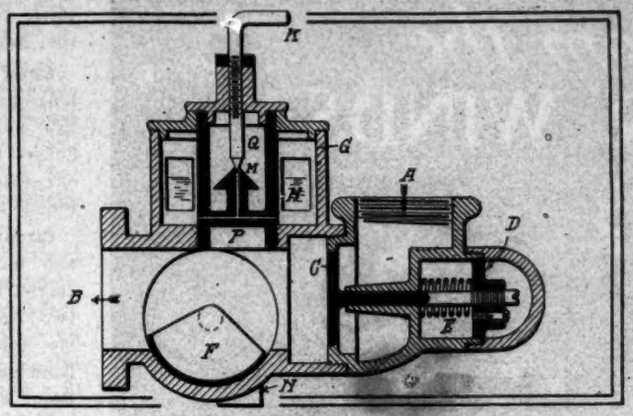
NO FLOAT IS USED

Doing without a float is perhaps the most interesting point about the Kellogg carbureter made by the Wray Pump & Register Co., Rochester, N. Y., whose name in the automobile trade has chiefly been associated with the manufacture of tire pumps. In the Kellogg carbureter a check valve is used to shut off the flow of gasoline when the motor is standing still. When the motor starts this check valve is opened by a float-valve, fastened to the check valve stem, the valve being raised by the motor suction. Gasoline entering at A finds its way to the receptacle D, from the top of which the gasoline can leave through the short vertical pipe N. In the top of this pipe rests the tip of the needle valve T, the valve, when in the position shown, closing the top of the pipe N and no gasoline flowing. Note in passing, however, that this stem T carries what is called a float valve R, which is in reality a large valve filling the entire carbureter casing from side to side, so that without being raised slightly air cannot pass through its ports. Motor suction through the opening B causes this valve to rise at which time the check valve T is raised out of the head of the pipe N and gasoline flows so that with very slow motor speed this check valve will have an up and down movement with each cylinder suction. Air entering through a circle of ports F around the base of the apparatus is deflected to the sides of the casing through the passage E owing to the presence of the gasoline receptacle D almost filling the entire casing. The air after passing, as indicated by the arrows, is again directed inwards by the flange ring Z so that a portion of it passes upwards through the flexible pan P into which the gasoline flows after exiting from the top of the nozzle. The air passing through the perforations in the bottom of the pan mix with the gasoline and then passes to the motor. All of the air, it must be noted, does not pass through the pan, a considerable portion flowing up past the edges of the pan, as shown by the longer arrows. In studying the operation of the apparatus, it is first of all important to understand that the air inlet ports F in the base are under the control of a damper L with a handle H connected up with the steering wheel lever so that by a right or left movement those ports can be opened or closed to any degree. On the top surface of this damper is a series of teeth which mesh with the small pinion M which is loosely mounted on the needle valve K that pierces the passageway N through which the gasoline enters. The pinion M so acts that when the lever H is moved to give more air the valve K is partly rotated allowing more gasoline to enter.



ARDSLEY JACKETED CARBURETER

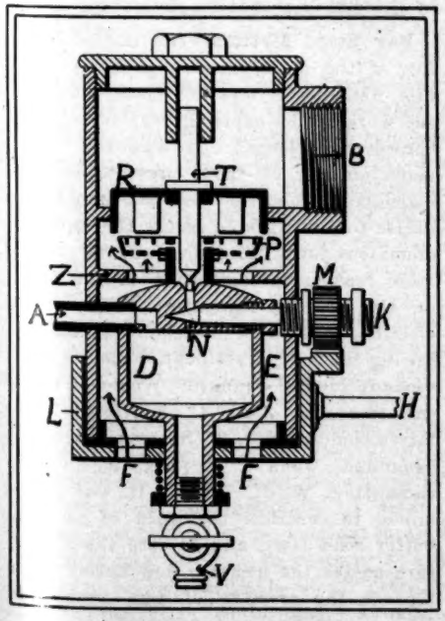
The wheel M is sufficiently loosely mounted so that when the damper L is partly closed the needle valve K is not immediately closed unless the damper is drawn back sufficiently so that the wheel M engages the opposite pin on the valve stem. The stop cock V is for draining off dross. Thus there is in this carbureter two gasoline controls and one air control. The ordinary throttle between the mixing chamber and the motor is dispensed with and the throttle put at the air intake. The amount of regulation of the valve K with reference to the turn of the damper L can be varied at will. The damper is supported through a coil spring shown at the base. By pulling the damper down and out of mesh with the pinion M it can be turned through any degree of a revolution before being meshed again with the pinion and in this way any lead or lag given to the air ports as compared with the gasoline valve K. It is essential that the valve T be weighted in proportion to the capacity of the motor to which the carbureter is attached.



PLAMBLA NOVEL CARBURETER

THE ARDSLEY CARBURETER

The Ardsley carbureter, made by the Ardsley Motor Car Co., Yonkers, N. Y., is made in two standard sizes, one for 20 to 35-horsepower motors and the other for 35 to 50-horsepower motors. A feature of this carbureter is that the mixing space H, past the nozzle C, is restricted so that the passage of the air is concentrated on the nozzle. Another not less noteworthy point is that the hot exhaust gases from the motor are used in the space F for heating the carbureter casing in cold weather to prevent condensation of the mixture, and to prevent too great heating of it an annular space G close to the mixing chamber is left open, so that air can enter. The object of this consists in that a good mixture of medium density is only possible when the air in the mixing chamber is not too hot and consequently too rare, and to avoid this the annular space for cold air is furnished. The float chamber A contains a copper spun float without joint except at a point well above the gasoline level in the chamber, so that the danger of flooding the float is reduced to a minimum. Gasoline enters at B, the entrance of it being under the control of a valve regulated through a pair of balance levers. Arrangements for adjusting the needle valve are provided by the adjusting rod D at the base of the valve. An auxiliary air valve L admits outside air into the mixture after the mixture has passed the needle valve, so that the mixture is proportionately weaker on very high speeds, giving a mixture capable of igniting in very short time



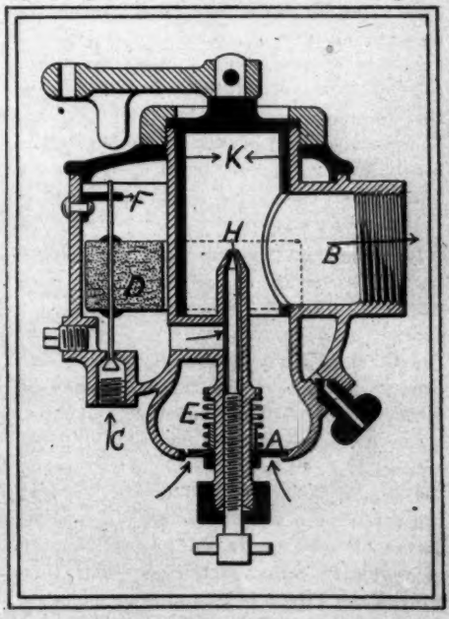
KELLOGG CARBURETER

FOR CARS AND BOATS

Made in Stillwater, Minn., by the Minnesota Boat and Power Works, the Schmidt carbureter is designed for use on automobiles or motor boats. The carbureter is a cup-shaped apparatus with a top horizontal lever attached to the throttle. Projecting from the bottom is the lower end of the needle valve in the spraying nozzle, permitting all nozzle adjustments being made from the outside. On the needle valve is a lock nut for securing the valve in any desired position. Details of the carbureter are seen in the line drawing, showing a vertical section, in which A represents the spring controlled air valve, the passage of air being represented by the pair of arrows; B is the outlet to the cylinders and through C is the entry of gasoline from the fuel tank of the car, the flow being, naturally, by gravity. As in the majority of the most improved styles the float D, made from shellaced cork, is made in ring form, so the spraying nozzle H is in its center, the argument in favor of this being the oft-discussed problem that, in ascending grades or taking corners, the gasoline level in the nozzle always remains the same. The valve admitting gasoline through the passage C is secured rigidly to the float, passing directly through it. Instead of being of the ball or needle type, it is of conical shape. With the float raised it enters the opening in the top of the passage C, effectually shutting off the fuel flow. The throttle K is a vertical cylinder, closed at the top, open at the bottom and having a large circular opening on the side adjacent to the passage B to the cylinders.

PALMBLA'S CARBURETER

The Palmbla carbureter, named after its inventor, E. S. Palmbla, of the North Chicago Machine Co., North Chicago, Ill., is designed for use on either two or four-cycle motors and was constructed to serve on the company's compound motors that operate on either the two or four-cycle principle. Air enters at A and passes the spring controlled C, which is under the tension of the coil spring E surrounding the valve stem. In order to prevent fluttering of this valve a dashpot effect is gained by having the piston piece D on the valve stem a sliding fit in the casing of the carbureter and by the use of an adjusting screw in it the spring tension can be varied at will. After passing the valve C the air enters the mixing chamber, which is a horizontal cylindrical passage with an exit B for coupling with the piping to the inlet valves of the motor. The throttle F, of the quadrant style, is operated from the steering wheel. The float chamber G carried above the mixing chamber contains a ring float H and has connections through the piping N with the fuel tank. The needle valve K is in the center of a cone-shaped piece M, over which the gasoline spreads and falls through the opening P into the top of the mixing chamber, where it unites with the rushing of passing gases to the motor. The unique feature of the carbureter is the carrying of the needle valve and spraying nozzle not in the direct air path.



STILLWATER CARBURETER

From the FOUR WINDS

BABY REO IN CIRCUS STUNT

Boston Show Attendance—According to the official figures just given out, the total attendance at the Boston show was 193,000, a record-breaker.

Texans Choose Leaders—The Austin Automobile Club, of Austin, Tex., has chosen the following officers: President, Dr. Bennett; vice-president, Frank Covert; secretary-treasurer, James Bartholomew. The club intends starting a crusade against scorching inside the city limits.

Omaha Goes on Record—The Omaha Automobile Club has adopted resolutions pledging its members to refrain from scorching and promising to report any offenders that may come under their notice. The club also seeks to secure the endorsement of the chief of police to a scheme to accept a club membership card as a bond for the release of any member arrested for scorching.

Baby Reo in Circus—Since the Baby Reo turned professional and joined the Barnum & Bailey circus it has made a great hit. A recent photograph taken shows the four Gulliver Lilliputians in the miniature car, overshadowed by George Auger, the 8-foot Welsh giant, while in the other car, also a Reo, is Octavie La Tour, who turns aerial somersaults in the machine.

Long Island Features—Among the material the contest committee of the Long Island Automobile Club has to work on is another economy run for a cup offered by Dr. C. B. Parker, who won last year's event. There will be three trophies offered for competition among the members—the Emanuel mileage trophy, for greatest mileage, shown by odometer, during the season. Another will be the Pardington attendance award, to the member who drives his own car in the greatest number of regularly called club runs. The third will be the Edwards meandering memento, to the member who drives his own car through the greatest number of states, territories, provinces or foreign countries.

Unwin Appointed—Harry Unwin, the former secretary of the N. A. A. M., has been appointed chairman of the contest committee of the New York Motor Club.

Florio a Winner—Florio, driving a 120-horsepower Mercedes, won the Panormitan cup at Palermo, Italy, March 23, covering the 4 kilometers 340 meters in 3 minutes 16 seconds. Cortese, 90-horsepower Mercedes, was second; Baldoni, 24-horsepower Fiat, third; Rigal, 50-horsepower Itala, fourth; Ravetta, 60-horsepower Mercedes, fifth; Cammarata, 24-horsepower Itala, sixth. Nine other cars started.

Grand Prix Drivers—At least twenty-seven cars are being counted on for the grand prix, the following list of possible French drivers being named: Darracq—Hemery, Wagner, Hanriot; Panhard—Heath, Test, Tart; Brasier—Baras, Barillier, Lebrun; Hotchkiss—Leblon, Salleron, Caillois; Renault—Sisz, Edmond, Richez; de Dietrich—Gabriel, Rougier, Duray; Bayard—Clement, Villemain, De la Touloubre; Serpollet—Pelzer, Chanliaud; Gregoire—Tavenaux, Renonee, Civelli de Bosch; Vulpes—Barriaux.

Second-Hand Sales—According to statistics gathered by the New York Herald, $50,000 worth of second-hand automobiles are weekly shipped out of Gotham. As illustrating 1 week's business the following figures are quoted: Thirty-five runabouts at an average of $275, $9,625; twenty runabouts, 6 to 12 horsepower, at an average of $425, $8,500; eleven two-cylinder tonneau cars, 8 to 16 horsepower, at an average of $755, $8,305; seventeen four-cylinder cars, 16 to 60 horsepower, at an average of $1,420, $24,140; seven electric and steam runabouts, at an average of $180, $1,260. These ninety cars went to twelve different states, the majority of them being intended for use in the country.

Chief Mullen Converted—John A. Mullen, chief of the Boston fire department, has adopted the automobile and now chases through the streets in a Columbia car which is equipped with an old-fashioned fire bell.

Circuit European Nominations—Twenty-one nominations already have been received for the Circuit European, including two Darracqs, two Mercedes, one Wolseley, one Regina-Dixi, one Dixi, four de Dion-Boutons, one Jean Borderel, four Benz, one Pilian, three Daimlers and one Serive.

May Use Motor Ambulances—Upon the success of the Knox vehicle which is now doing a hurry-up stunt for the Philadelphia police department depends the ordering of several motor ambulances for use by the local department of public health and charities. Director Catlin, of the latter department, declares the need of several fast wagons for the city's hospital service is most urgent, and a bill will be introduced into councils for the purchase of two or more ambulances if the water-cooled test pans out.

Gophers to Test Law—It has been decided by the Minneapolis Automobile Club that no member of the club will pay the city license required by the new code. According to the desires of the club, the sooner an arrest is made for violation of the license law the better pleased the automobilists will be. This applies only to those members of the club who already hold licenses from the state boiler inspector. Members who are owning cars for the first time will secure the regular license from City Clerk Lydiard, as directed by the new state law. In regard to the city ordinance requiring drivers to take an examination as to their ability to operate machines and obtain a certificate from the board of examiners, the attitude of the club seems to be favorable.

Bay State Matters—The annual meeting of the Massachusetts State Automobile Association was held last week and the work of the expiring year reviewed at considerable length. It was the unanimous opinion of those present that the legislative committee deserved unqualified praise for its work to secure the repeal of obnoxious town ordinances and to procure more reasonable legislation at the hands of the present legislature. The annual election resulted in the choice of the following officers: President, Elliot C. Lee; vice-president, Franklin Weston; secretary-treasurer, John C. Kerrison; legislative committee, L. R. Speare; good roads committee, John P. Coghlin; membership committee, W. H. Chase. It was determined to continue the work of securing better road laws, and in case the legislature passes the measure now before it, as regards the erection of sign boards, to

immediately start their erection, not only on the much-traveled roads, but also in the less frequented sections.

New Motor Cycle Club—The Motorcycle Club of Brooklyn has been incorporated with the secretary of state of New York for social purposes and to defend the rights and privileges of motor cyclists, and also to maintain a clubhouse.

Boom On in Illinois—Peoria has joined the Illinois state association of the American Automobile Association and Rockford and Decatur are on the point of filing an application for membership. A general meeting of the association probably will be held in Bloomington or Decatur in a short while.

Omaha's Officers—Dr. F. N. Connor has been chosen as president of the Omaha Automobile Club, with Charles Brown as first vice-president, J. F. De Jarnette as second vice-president, E. L. McShane secretary, Emil Brandeis treasurer and Harry L. Cummings, Gould Dietz and Louis C. Nash as directors.

Kills Kull's Chance—The non-stop engine run of Kull's 50-horsepower Wayne touring car, which started in New York 1 minute after midnight on Monday morning of last week, was brought to an end on last Thursday afternoon by a cab backing into the machine and wrecking the radiator. The car had been running 87 hours and during that time had covered 1,261 miles, an average of 14½ miles an hour for the jaunt.

Club Orders Car—The Pittsburg Country Club has ordered from the Banker Brothers Co. a 32-horsepower Pierce Great Arrow, which will be used to carry the club men and their friends from the street car line on Forbes street to the club house on the crest of a Squirrel hill elevation. The body will be of the wagonette type with a seating capacity for eight persons and the chauffeur. The car will make the trips on the hour and the half-hour from the club, each trip taking 5 minutes. This will give it a total of about 12,000 miles a year.

Where "Petrol" Came From—Henry Sturmey has come to the front with an explanation of why the English call gasoline petrol. "When the motor car first made its appearance in this country, the only petroleum spirit available for use was that placed on the market by the Anglo-American Oil Co., under the name of Pratt's motor spirit," says Sturmey. "Seeing the demand for an exceptionally pure article, Carless, Capel & Leonard put a doubly-distilled brand of spirit on the market, under the invented name of 'Petrol,' and for several years 'petrol' was understood to signify that particular production, but the word came trippingly to the tongue, and gradually the term became adopted out of its original meaning, until it now is taken in common acceptation to be the designate of all petroleum spirit usable in motor cars. I question if many motorists today know that 'petrol' really refers specifically to Messrs. Carless, Capel & Leonard's production."

Orders Big Boat Engines—The Fairmount Engineering Works, which manufactures the Chadwick, has taken an order for two 120-horsepower engines to be placed in a motor boat built by Shephard, of Essington, for the international cup race.

Ohio Road Fund—Secretary of State Laylin estimates that Ohio's new automobile registration law which makes him the registering officer and authorizes him to collect a graded annual license, will produce a state revenue of $50,000. As this is given to the state highway commissioners' fund it will probably restore the amount available for the good roads movement for this year to the original figure of $200,000.

Olds Has Cup Fever—During a visit to New York last week F. L. Smith, of the Olds Motor Works, announced that Howard Coffin, chief engineer, would design and superintend the building of an Olds racer for the Vanderbilt cup. Subsequently it was given out that Ernest Keeler, at present at the company's agency here, had been selected to drive it. The Olds people are by no means new to the racing game, having built several years ago the Olds Pirate, which established light-weight records at Ormond.

Wayne to Try Again—The managers of the Philadelphia branch of the Wayne Automobile Co., not satisfied with the abrupt ending of the 6-day endurance test of the Wayne in New York city, will attempt a similar stunt in the Quaker city after the Atlantic City races. A course is being surveyed on Broad street, from Jackson street to Olney avenue, about 8⅛ miles, and official notchers and checkers are being enrolled for the trial. A 50-horsepower car will be used—the same car, by the way, which is entered in the Atlantic City races—and it is expected to put the record for the 144 hours at considerably over 2,000 miles.

Louisiana at Work—The Motor League of Louisiana has been organized. The league will promote the building and improvement of roads, and will endeavor to secure suitable automobile legislation and will advocate the use of motor cars for both business and pleasure.

A. C. A.'s Temporary Quarters—After May 1 and until the new club building in West Fifty-fourth street is completed the Automobile Club of America will occupy rooms on the top floor of the Plaza Bank building, at Fifth avenue and Fifty-eighth street, the lease of the first floor expiring on that date.

Daimler Up First—In a climbing match held on Viaduct hill, New York, April 13, between C. W. Spencer's Pope-Toledo, driven by Joe Judge, and J. E. Demar's English Daimler, piloted by H. N. Harding, both rated at 35 horsepower, the latter proved the victor, making the ascent of about ⅖ of a mile up an average grade of 15 per cent in 33⅘ seconds. The loser's time was 50 seconds. The Pope-Toledo had trouble with its gasoline feed and the Daimler people will give it another match.

Pope Entry in First—Just as he did last year so has Colonel Albert A. Pope this year made the first nomination of an American candidate for the Vanderbilt race. Secretary Butler, of the Automobile Club of America, through whom the entries are made, has received the colonel's check for $1,000, naming a Pope-Toledo to carry his colors. Among the other manufacturers who have announced their intention to build and enter candidates are the builders of the Thomas, Olds, Frayer-Miller, Stanley, Matheson, Chadwick and Christie machines.

BOSTON'S FIRE CHIEF IN COLUMBIA CAR

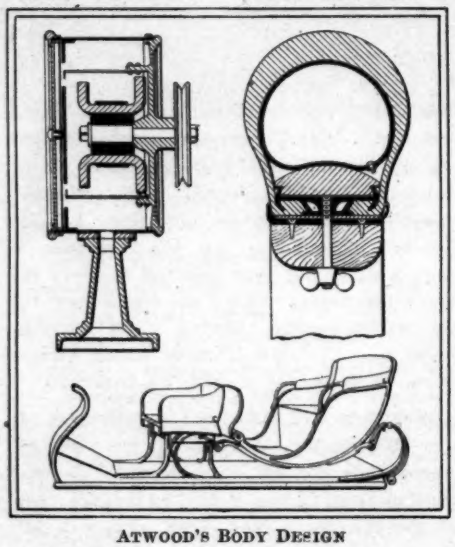
Current Automobile Patents

Spring Wheel—No. 817,235, dated April 10; to D. Ferrand, Newark, N. J.—This spring wheel has the usual metallic rim A to which can be attached the solid rubber tire or a tire of any other class. To the hub of the wheel is secured a set of eight tubular spokes B. In each spoke operates a rod C pivoted at its outer end to a lug on the inside of the wheel rim and carrying on its lower end a piston D which is an air-tight fit within the spoke. Outside of this piston, that is, between it and the rim of the wheel is a coil spring E within the wheel spoke. At the other side of the piston is an air cushion. The load is thus resiliently carried between these springs and the air cushions in the eight spokes of the wheel.

Spring Wheel—No. 817,265, dated April 10; to W. W. McKee, Belleville, N. J.—In considering this spring wheel which is illustrated note that the spokes themselves are the springs. They take the form of long hooked-shaped springs pivoted at one end to the hub of the wheel and at the other end to the rim. Consider one of these spokes. It is pivoted to the rim A at the point B and at its opposite end is similarly pivoted to the wheel hub. At the point D this spring lies side by side with the spoke to the right of it. It will be noted, too, that each spoke in the wheel, at the same point in it, lies side by side with an adjacent spoke. The result of this contact is that one spring assists the others in carrying the load so that as the wheel revolves there is a constant overlapping of the load on the springs and a continuous easy spring suspension.

Motor Lubrication—No. 817,629, dated April 10; to L. M. G. Delaunay-Belleville, Neuilly-sur-Seine, France—The illustration shows this scheme of lubrication adapted to a two-cylinder, vertical gasoline motor. The base of the crankcase is made low at the left end with a gentle slope from the right, so all of the oil in the case will flow to the left. In the left end is an oscillating oil pump which is operated by a connecting rod off an eccentric on the end of the crankshaft. This pump takes the oil out of the crankcase through a filter and delivers it through separate ducts to the main bearings of the crankshaft, which shaft is bored throughout its length. The oil from the main bearings is conducted through the bores to the bottom bearings of the wrist pins. On each lead from the oiler is a pressure regulation valve, so any desired amount of oil can be utilized.

KEMPF'S SPEED RECORDER — RAYMOND'S PNEUMATIC TIRE

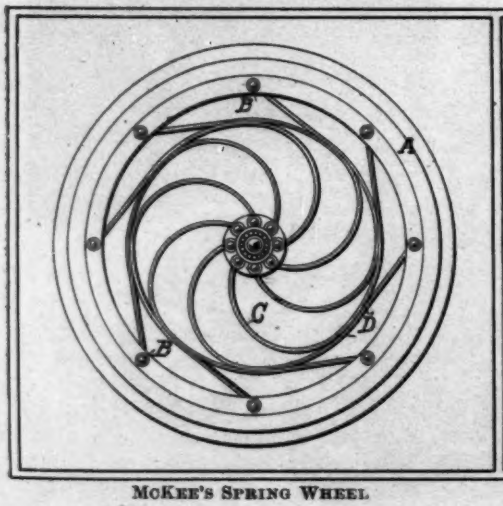


ATWOOD'S BODY DESIGN

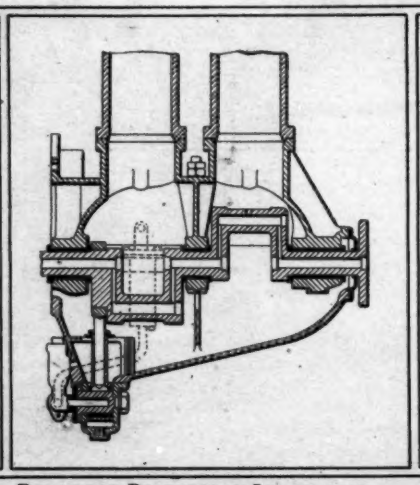
Combination Tire—No. 817,668, dated April 10; to J. C. Raymond, New York city—This invention relates to a pneumatic tire. The rim of the wheel carries a rim plate which is screwed to the rim, and this plate has a flange at one side to assist in holding the tire in position, but is unobstructed on the other side. After the tire is placed in position a base plate is slipped over the rim plate. This base plate has a flange at one side and is unobstructed at the other, so when slipped in position its flange holds one side of the tire in position and the flange of the rim plate holds the other side of it in position. But the air tube of the tire does not rest on either of these plates. On top of the base plate is fitted a tire framework which has inverted flanges at each side, and between these flanges and the flanges on the rim plate and base plate the large lips on the tire are held, and so they cannot get out. On top of this tire framework is placed a solid rubber tire and on this the air tube rests.

Speed Recorder—No. 817,555, dated April 10; to R. Hartmann-Kempf, Frankfort-on-Main, Germany—This device operates on the magnetic principle. It is driven by belt or other means from any moving shaft, such as automobile road wheel or crankshaft. The movement imparted to parts of the device sets up a magnetic field. Resonant bodies of magnetic material are located in this magnetic field and are tuned to correspond with the reading scale of the apparatus. Means are provided for displacing the lines of force of the magnetic field for the purpose of imparting periodic magnetic impulses to the resonant bodies.

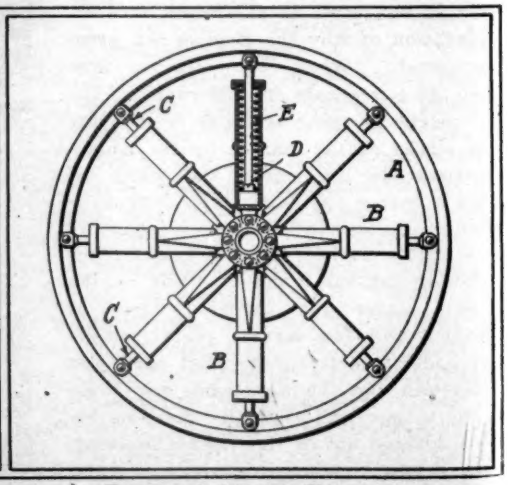
Body Design—No. 37,952, dated April 10; to W. H. Atwood, New Haven, Conn.—This is a design only and applies to automobile bodies. The body part accommodating the seats is suspended on C springs in front and rear, these springs being carried on a framework similar, in fact, to that used in automobiles at present. The result gives the back seat a swan effect and permits of it being detached at any time, leaving the front seat in position. Instead of the rear seat any covered compartment or delivery box can be attached.



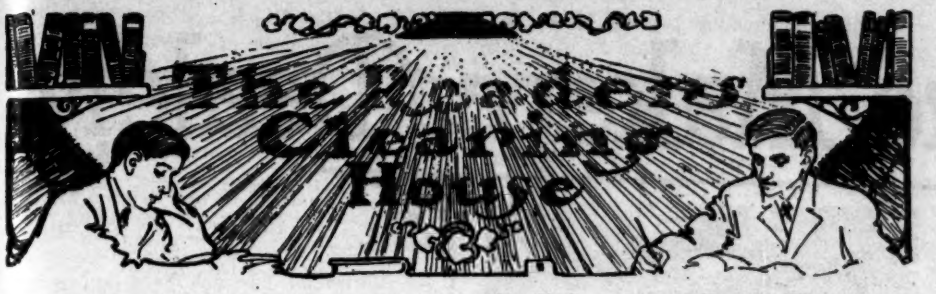
McKEE'S SPRING WHEEL



DELAUNAY-BELLEVILLE LUBRICATOR



FERRAND'S SPRING WHEEL



MOTOR RATING

Lincoln, Neb.—Editor MOTOR AGE—Can you inform me through the columns of the Readers' Clearing House why it is so much dispute arises out of the rating of gasoline engines? One maker with a motor with cylinders measuring 4-inch bore and 5-inch stroke gives a certain rating and another maker with cylinders having the same measurement gives a considerably higher rating, whereas a third maker gives a lower rating.—N. M. K.

In the rating of a gasoline motor many variables have to be contended with. In steam engines where the bore and stroke and steam pressure and temperature are given a definite rating can be given, but not so with gasoline motors. The pressure of the gases forming the explosive mixture varies in different motors. One maker compresses the gas before the explosion to 68 pounds per square inch, another uses a pressure as high as 86 pounds, and the others range between these extremes. Consequently, unless we know the pressure of the gases in the motor definite rating is impossible. Another variable is the temperature of the ignition spark or flame. With one set of batteries one flame temperature is given, with dry cells a different temperature occurs, and the many different magnetos give varying temperatures. Unless this temperature is known accurate rating is impossible. Then again, the temperature of the mixture before ignition must be considered. If the compressed gases have one temperature in one motor and a higher temperature in another motor, the greater horsepower will come from that motor with the gases of higher temperature. The cooling surface of the cylinder must be calculated; so must the piston speed; so must the length of the spark given and, last but not least, the diameter of the cylinder and the length of the stroke. Other influences are valve diameter, time of opening and closing of the intake and exhaust valves and the contour of the combustion chamber.

HILL-CLIMB RECORDS

Tarrytown, N. Y.—Editor MOTOR AGE—We beg to call your attention to the clipping which appeared in your paper April 5, in which you state the Reo's time was 52:38⅖ as winning the climb up Mount Washington. We would respectfully call your attention to the conditions of the climb, and also state that our time of 51:41⅘ was against the Reo's and that we got the gold medal. The full details of this climb are as follows: We ran our car up first as an absolutely stock car without alterations whatever. The Reo people ran their car up, but took off the tonneau and put on a special rear axle. We made a protest in regard to this. We took the tonneau off our car and without changing the axle went up the mountain again and beat the Reo's time, and we were awarded the gold medal and given first place.—MAXWELL-BRISCOE MOTOR CO.

Washington, D. C.—Editor MOTOR AGE—In your issue of April 5 in the Readers' Clearing House I find a letter from J. W. N., Mansfield, O., in which he asks the best time made in the Mount Washington hill-climb of 1905 and also the time made by a number of different machines. I understand from his letter he wishes the best time made by each machine, and the record that I have, which was copied from several automobile publications, places the best time of the Stanley at 22:17⅘, while your reply to his letter places it at 27:17. I should like to know which of the times is correct.—HORACE C. CHANDLEE.

The record of MOTOR AGE shows that the Reo's time of 52:38⅖ was made in the class for stock cars listing from $1,000 to $2,000, and that the power of the motor was given as 16 horsepower; the 16-horsepower Maxwell was given second in 1:00:27. Then came the protest, which was decided afterward. The same record shows that the 51:41⅘ time made by the Maxwell was in the class for cars weighing from 851 to 1,432 pounds, being second to the Stanley steamer, which did 27:17. It is true a Stanley steamer made the climb in 22:17⅘, but this was not an official record. Likewise the Napier, driven by Hilliard, covered the route in 20:58⅖.

METRIC MEASUREMENT

Topeka, Kan.—Editor MOTOR AGE—At the recent automobile shows I visited the foreign sections in one or two of them, and was somewhat confused with the dimensions of cylinder bore and stroke and wheel and tire diameter being given in the metric system. These measurements were invariably stated in millimeters, which rather added to my confusion and embarrassment than to my scant store of motor car knowledge. I would like to see in the columns of the Readers' Clearing House a table setting forth most of the more important metric measurements in inches and further if possible a scheme for facilitating the remembering of at least some of these measurements.—J. J. D.

The metric system is the recognized one of France, Germany, Italy and most other continental countries and is now being introduced in England, Scotland and Ireland. The units of linear measurement in this system are:

Millimeter, equaling .0393 inches or 1-25 inch, approximately.
Centimeter, equaling .3937 inches or 2-5 inch, approximately.
Decimeter, equaling 3.9371 inches or 4 inches, approximately.
Meter, equaling 39.371 inches or 1 1-12 yards, approximately.
Decameter, equaling 32.809 feet.
Hectometer, equaling 328.09 feet.
Kilometer, equaling 1,093.6 yards, or ⅝ mile.

Those interested in the cylinder bore and stroke and wheel and tire measurements are interested only with millimeters, usually abbreviated mm. The reckoning of millimeter measurements is simplified by remembering the equivalents of 1, 2, 3, 4, 5, 6, 7, and 8 inches in millimeters. One inch is approximately equal to 25 millimeters, 2 inches to 50 millimeters, 3 to 75, 4 to 100; 5 to 125; 6 to 150; 7 to 175 and 8 to 200. These equalities are only approximate but are close enough for ordinary calculations, as 25 millimeters are but 2-100 off an inch, 50 millimeters are but 4-100 off 2 inches; 75 millimeters are but 6-100 off 3 inches, and this increase is almost regular. Approximately for every 25 millimeters reckon 1 inch.

TIRE DIAMETERS

Diameter in millimeters	Diameter in inches	Approximate diameter in inches
65	2.55	2½
70	2.75	2¾
75	2.94	3
80	3.144	3 1-5
85	3.34	3⅓
90	3.53	3½
95	3.73	3¾
100	3.93	4
105	4.12	4
110	4.32	4⅓
115	4.52	4½
120	4.71	4¾
125	4.91	5
130	5.10	5
135	5.30	5¼
140	5.5	5½
145	5.69	5¾
150	5.89	6
155	6.11	6
160	6.28	6¼
165	6.48	6½
170	6.68	6¾
175	6.87	7
180	7.07	7
185	7.27	7¼
190	7.46	7½
195	7.66	7¾
200	7.86	8

WHEEL DIAMETERS

Diameter in millimeters	Diameter in inches	Approximate Diameter in inches
650	25.54	25½
700	27.51	27½
750	29.475	29½
800	31.44	31½
810	31.833	31 4-5
815	32.029	32
820	32.246	32¼
830	32.619	32 3-5
840	33.012	33
850	33.405	33 2-5
860	33.618	33 3-5
870	34.191	34 1-5
875	34.3875	34 2-5
880	34.584	34 3-5
910	35.763	35¾
915	35.95	36
920	36.156	36 1-5
960	37.548	37½
1,010	39.69	39¾
1,020	40.086	40
1,080	42.444	42½

Among the Makers & Dealers

Starts In—The Artizan Brass Co., 118 Michigan street, Chicago, is now manufacturing the Safety tire pump.

Owesney Supervisor—Harry L. Owesney has been appointed western supervisor for the Winton Motor Carriage Co., with headquarters at Chicago.

Contest for Agents—E. D. Winans, of New York, importer of Michelin tires, offers a trip to next year's Paris show to the five agents selling the largest number of the tires in question.

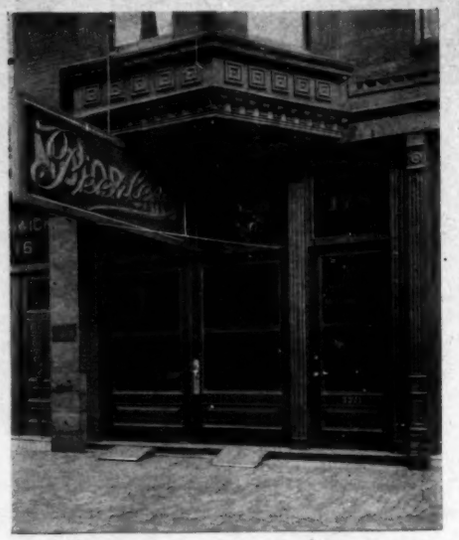
Chicago Addition—The Consolidated Equipment Co., of 1400 Michigan avenue, Chicago, has started in business, handling the Bell compound indicating pump, Gold Leaf metal polish, Miller & Hopkins siren horn and the E & J lamps, for which the company is distributer. S. F. Bancroft is manager.

Miller Branches—The three new branches opened by Charles E. Miller, manufacturer, jobber, exporter and importer of automobile supplies, are at 924 Eighth avenue, New York city, just around the corner of the new club house of the Automobile Club of America; 227½ and 229 Jefferson avenue, Detroit, and 824 Main street, Buffalo. Good business is reported.

Williams in for Himself—Phil Williams, long connected with the Philadelphia Locomobile branch, has gone into the game for himself, at Chester, Pa. He will hereafter guide the destines of the Chester Automobile Co., which has just established a big garage and repair shop at Broad and Crosby streets, Chester. Williams will also represent the Cadillac car in Chester and vicinity.

Ford Agency Changes Hands—The Ford agency, which has been successfully managed by J. C. Symmes for the past 3 months, has been turned over to the Nashville Motor Car Co., of which Duncan R. Dorris is at the head. Mr. Symmes is connected with the Cumberland Telephone & Telegraph Co. as purchasing agent, and as the position with the telephone company and the Ford agency conflicted it was deemed advisable by Mr. Symmes to give up the automobile business.

Logan Shipments—The Logan Construction Co., of Chillicothe, O., announces it has shipped carload lots to the following: Empire Auto-Car Co., New York; Knox Commercial Auto & Supply Co., Philadelphia; Commercial Automobile & Supply Co., Washington, D. C.; Logan Automobile Co., Pittsburg, Pa.; Commercial Motor Car Co., Cleveland, O.; Wayne Auto & Supply Co., Detroit, Mich.; A. C. Banker, Chicago, Ill.; Milwaukee Auto Engine & Supply Co., Milwaukee; Smith Automobile Co., Denver, Col.; Depot Carriage & Baggage Co., Kansas City, Mo., and D. B. Hoffer & Sons, Lebanon, Pa.



PEERLESS BOSTON BRANCH

Will Move—M. Kirchberger & Co. are sending out cards announcing that on or about April 23 they will remove to 44 Park place, New York.

Building in Charlotte—The Standard Lamp Co., at present located at 43 Canal street, Chicago, is erecting at Charlotte, Mich., a T-shaped factory which will be ready for occupancy in 2 months.

Omaha's Show—The first attempt of Omaha to hold an automobile show proved a success, it being estimated that in the 4 days the affair lasted 10,000 people took in the exhibition and that $40,000 worth of cars was sold.

Adds to Factory—The Springfield Metal Body Co., of Springfield, Mass., is preparing to care for its increased business in aluminum bodies, fenders and tops and has put up an addition containing 48,000 square feet of floor space.

Dividends Ready—General Manager Miles, of the N. A. A. M., announces that the dividends from the Chicago show are ready for distribution among the exhibitors who had attended at least one previous show. Each dividend will amount to 21 per cent of the charges for rentals and equipment.

Succeeds Owen—C. W. Churchill, assistant manager of the Cleveland branch of the Winton Motor Carriage Co., has been appointed manager of the Winton New York branch, to succeed Percy Owen, resigned. Churchill had just been appointed the Winton company's eastern supervisor when Owen's resignation was received. As New York branch manager, Churchill will have supervision of the erection of the new Winton branch at Broadway and Seventieth street, New York. His successor in Cleveland has not been appointed.

B. L. M. Factory—The Breeze-Lawrence-Moulton Co. has established a factory in Brooklyn for the manufacture of B. L. M. automobiles and has placed an order with the Aster Co. for twenty 22-horsepower motors.

Takes on Pullman—Besides the National, which the Tioga Automobile Co. is so rapidly popularizing in Philadelphia, that concern has just secured the local agency for the Pullman cars, built by the York Motor Car Co., of York, Pa.

Touring Catching On—T. Winton Henderson, son of Vice President Henderson, of the Winton Motor Carriage Co., has gone to Cleveland to complete the details for the European personally conducted automobile tours which he has promoted for the coming summer. He announces a large booking for each of the tours.

Monster Garage—The Unity Investment Co., 530 West Twenty-seventh street, New York, calls its garage an automobile warehouse. It is a new building, six stories high and is capable of storing 200 automobiles. It has a 16-foot platform electric elevator and is intended as a repository for new machines being held in stock by Gotham tradesmen.

Moving—The Automobile Cover Top & Mfg. Co., of New York, is moving into larger quarters at 154 East Fifty-seventh street, comprising about 20,000 square feet, where it will open departments for building bodies, painting and upholstery work for automobiles. W. J. Fickling and Mr. Spinning have recently purchased the interest of Percy Owen and Robert E. Fulton in the business.

Body Building in Italy—Rothschild, France's body builder, is putting up a plant in Turin, Italy, where he will turn out 1,000 bodies a year. Italians will be employed to work under French overseers. The Italian company is capitalized at $300,000. The London branch of Rothschild will be overhauled and its capacity increased so the combined output of the three plants will be 3,000 bodies a year.

Maxwell Floor Space—The Maxwell-Briscoe Motor Car Co. has been making an estimate of the floor space in its various factories at Pawtucket, Tarrytown and Chicago. The total floor space is considerably in excess of 255,000 square feet, without the inclusion of vast platform and yard space at Chicago. This, it is estimated, is still 150,000 square feet less than the company needs to carry forward the work of making the Maxwell cars

now under order. Additional facilities will be provided at an early date.

Benson in Business—B. F. Benson has opened offices in the Keystone bank building, Pittsburg, and will introduce the American Mercedes car to Pittsburgers.

Peerless' Boston Branch—One of the busy spots on Boston's automobile row is the northeastern agency of the Peerless Motor Car Co., at 178 Columbus avenue, in charge of J. L. Snow, asisted by R. R. Ross.

New Ford in New York—The arrival of the first of the Ford six-cylinder cars in New York on Friday created more than a mild sensation along automobile row and Gaston Plaintiff, the local manager, was fairly swamped with automobilists and tradesmen coming in to look it over.

Adds Dolson—The National Auto School Co., at Oxford and Carlisle streets, Philadelphia, has just secured the local agency for the Dolson car, and is making alterations to its plant to accommodate the sample cars. The classes are all filled, and working under the guidance of competent teachers.

Certificate for E. H. V. Co.—The Massachusetts Institute of Technology recently made a test of an engine of the type used in the Compound cars and pronounced it to be of a high degree of efficiency. A certificate has been granted by the institute to the E. H. V. Co., of Middletown, Conn., maker of the cars and engines.

Plant for Belden—The Belden Transmission Co., of Pittsburg, has bought the Baker-Resek factory, of Cleveland, and will begin to manufacture transmission next week with a force of about 500 men. The factory was formerly used to make ball bearings and automobile parts. The Belden transmission will be used in three Frayer-Miller cars which will go into the Vanderbilt trial next August.

Percy Owen an Aerocarist—Percy Owen has resigned as manager of the Winton branch in New York to become eastern sales representative of the Aerocar Co. and incidentally to act as manager of branch the Detroit company has just established at Broadway and Seventy-third street. C. W. Churchill, assistant manager of the Winton store in Cleveland, will take his place. Owen has been agent and manager of the house of Winton in New York since 1900.

New Parts Company—The Hartford Automobile Parts Co. has been incorporated under Connecticut laws to manufacture and deal in high grade automobile parts. The new organization has elected officers as follows: President and treasurer, E. A. Bardol, of Hartford; secretary, A. J. Broughel, of Hartford; vice-president and manager, F. H. Bogart, of New Britain. An office has been opened at 438 Asylum street, Hartford, where sufficient space has been secured, together with power, to accommodate the present needs of the company. The first product of the company will be a new type of universal or cardan joint, on which patents are now pending.

Working for Cronin—James Donaldson, formerly with the Centaur Motor Co., of Buffalo, has taken a position as manager of the garage of John W. Cronin, of Syracuse, N. Y.

Kiser's Assistant—C. Paul Tracy, a product of the automobile school of the Winton Motor Carriage Co., has been appointed office manager of the company's Pittsburg branch, under Branch Manager Earl H. Kiser.

New Comer—A company, which proposes to manufacture automobile touring cars on quite a large scale in the near future, is the Lehr Agricultural Co., of Fremont, O. The first car has been completed, and has already been given a number of severe tests on paved streets and muddy roads.

Franklin Deals—The H. H. Franklin Mfg. Co. has closed deals with the following agencies: Harrington Automobile Station No. 1, Worcester, Mass.; Somers Buggy Co., Barnesville, Ga.; Cortland Auto. Co., Cortland, N. Y.; Robert Holmes & Bro., Danville, Ill.; C. D. Moon, Eauclaire, Wis., and F. A. McClune, Ithaca.

Coast Garage—With the opening of their branch at Twelfth and Oak streets, Oakland, Cal., the Pioneer Automobile Co., whose headquarters are in San Francisco, has given to that city one of the finest garages on the Pacific coast. The building is 50 by 150 feet, fronting on Twelfth street. Wide doors on the Oak street side make it possible to drive in one way and out the other without having to turn around inside the building. A gallery runs around the second story where are located the dressing rooms, lockers, reception room and shop. The latter is equipped with four lathes, three drill presses, shaper, air compressor, grinding and buffing machines and power saws. The gallery is suspended from the trussed roof by steel rods, doing away with the usual pillars which interfere with manipulating cars on the ground floor, besides taking up space. W. J. Freeling is the manager of the new establishment.

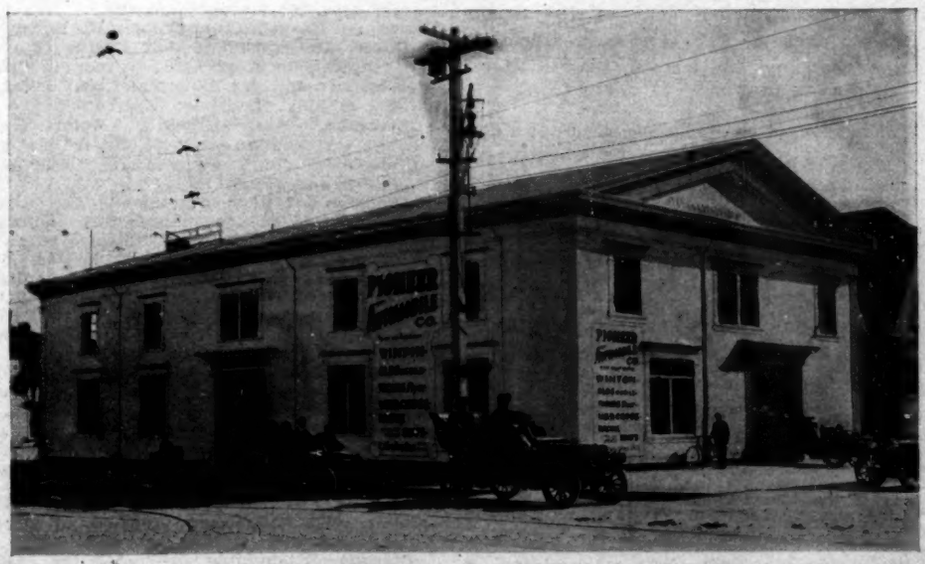
Removal Notice—The Carpenter Steel Co. announces it has moved its New York office from 1 Broadway to 100 Broadway, where it is located in the American Surety building.

Promises New Tire Plant—According to E. D. Winans, manager of the Michelin Products Selling Co., of New York, there will soon be a Michelin tire factory in this country. Mr. Winans says it will probably be located in New England and that representatives of Mr. Michelin are to come over in May to arrange for its establishment.

Block Now a Quaker—Louis C. Block, who has just made the unique record of attending every one of the eight automobile shows in the interest of the Ford, a mark he claims was not equaled by any other automobile representative, has been detailed to the Ford's Philadelphia branch, where he will become the associate of Manager L. E. Hoffman.

Easter Monday Opening—The new quarters of the Rainier in Philadelphia, 236 North Broad street, were officially opened on Easter Monday. The salesroom was handsomely decorated with lilies and other blooms suitable to the season, and a large number of enthusiasts congratulated Manager A. J. Picard upon the completeness and beauty of his new quarters.

Linscott Gets More Room—Though the Linscott Motor Co., of 163 Columbus avenue, Boston, has been in business only a year it has been forced to enlarge its quarters, and has leased the building at 41 Stanhope street, formerly occupied by A. T. Fuller. This is being fitted up as a garage and machine shop. The removal of the machine shop will give the company 10,000 square feet of additional space at 163 Columbus avenue for the storage and display of Reo and National cars.



GARAGE OF THE PIONEER AUTOMOBILE CO., OF SAN FRANCISCO

BRIEF BUSINESS ANNOUNCEMENTS

Cleveland, O.—The Baker Motor Vehicle Co. has moved into its new factory.

Denver—The Smith Automobile Co. has been incorporated with a capital stock of $10,000.

Grand Rapids, Mich.—The Lubeck Automobile Co. has been incorporated with a capital of $15,000.

Boston—The Adams-Sutton Co. has been forced to enlarge its establishment and has taken another floor in the Motor Mart.

Boston—A branch of the Mercedes Import Co. has been opened at 92 Massachusetts avenue under the management of A. A. Stillman.

Harrisburg, Pa.—The Colonial Automobile Co., of Pittsburg, has just filed incorporation papers here, the capital stock being placed at $25,000.

Milwaukee—The Hickman, Kraemer & Croll Co. has been organized to handle the Cartercar for the state of Wisconsin and the upper peninsula of Michigan.

Detroit—The Automobile Equipment Co. has elected the following officers: President, P. E. Hawley; vice-president, Stanley Brooks; secretary, George E. Hawley; treasurer, R. S. Hawley.

Springfield, O.—The Igou Bros. Mfg. Co., successor to Krotz Mfg. Co., has removed its shop to the corner of North and Center streets, where it will continue the business as a contract, job and automobile repair shop.

Newark, N. J.—The building at the corner of Clinton and Elizabeth avenues, formerly used as a livery stable, is now jointly occupied by the Newark Garage & Repair Co., the Autovehicle Co. and the Calvert-Zusi Co.

Philadelphia—Frank Yerger, of the Keystone Motor Car Co., has severed his connection with that company and will assume the management of the Studebaker agency. The temporary offices of the company are located in the Motor Shop on the row.

Jackson, Mich.—If plans work out a new company will be formed to continue the business of the Buick Motor Co., which is to remove to Flint this fall. The Durant-Dort people will be interested in the new company and will associate local capital with them.

Nashville, Tenn.—The Southern Automobile Co. is about to start the manufacture of automobiles and has fitted up a facvtory in the old Broad street amusement hall, on Broadway. J. H. Lawrence, mechanical engineer of Vanderbilt University, will be in charge of the mechanical end of the company and will superintend the manufacture of the machines. The company will make a specialty of commercial cars. It intends to enlarge its present quarters by tearing out a part of the side wall and building an addition to the carpenter's shop.

Boston—The Darracq Automobile Co., of New England, has established its headquarters in the Motor Mart.

Detroit—The Ritter Mfg. Co. has removed to 243-245 Jefferson avenue, where it has fitted up more extensive quarters.

Hartford, Conn.—The Hartford Automobile Parts Co. has filed a certificate of incorporation. It has a capital stock of $10,000.

Grand Forks, N. D.—The Grand Forks Automobile & Garage Co. has been appointed Carter car agent for the eastern half of this state.

Albany, N. Y.—The Frayer-Miller Motor Car Co. has been incorporated with a capital stock of $1,000 to deal in automobiles and motor cars.

Des Moines, Ia.—The Bartholomew Co., of Peoria, manufacturer of the Glide car, has established an Iowa branch in Des Moines, with S. W. Leonard in charge.

Joplin, Mo.—A. C. Webb, who has been in the automobile business in this city for the past 2 years, and recently formed an automobile company, has had the concern incorporated with a capital stock of $15,000. The company's new quarters at Second and Joplin streets will be fitted up and made one of the most commodious in the southwest.

Annapolis, Md.—A bill has been passed amending the charter of the Maryland Automobile Mfg. Co.

Philadelphia—The Wayne Motor Car Co. has taken temporary quarters at 23 North Juniper street.

Mexico City, Mex.—George Arbuckle is looking after the interests of the Winton Motor Carriage Co. in this territory.

North Adams, Mass.—The automobile repair shop of J. M. Barber was destroyed by fire April 6 with a loss of over $5,000.

Philadelphia—H. B. Stillman, local manager of the Mercedes Import Co., has opened the company's new branch at 153 Broad street.

Lansing, Mich.—The Reo Car Co. has filed amended articles of incorporation, changing the name of the concern to the Reo Motor Car Co.

New York—After May 1 the headquarters of the George J. Scott Motor Car Co., agent for the Glide car, will be at Broadway and Fifty-fifth street.

Newark, N. J.—The Autovehicle Co. is now installed in its new garage at 213-215 Clinton avenue. George Paddock is the manager of the concern.

Pasadena, Cal.—It is the intention of the Pasadena Automobile Co. to establish a garage here. Directors of the company have been named, the selections being D. F. Robertson, F. P. Harris and H. P. Congdon.

Chicago—The Berliet has secured local representation through the newly-formed Walden W. Shaw Co., which is erecting a handsome building on automobile row. The new models are expected the first of the coming month.

Morristown, N. J.—A plot of ground has been purchased in Pine street by Victor A. Wiss & Brother, and the construction of a large garage will be started at once. The building will be ready for occupancy by June 1.

New York—Herbert K. Levick, who has been sales manager of the Central Automobile Co. for the past 4 years, has become sales manager of the Frayer-Miller Motor Car Co., relieving J. H. Knepper, the general manager, of part of his duties.

New York—Plans have been filed for the remodeling into a garage for Edward G. Gilmore, the famous old Nilsson hall at 130-132 East Fourteenth street. The interior and front will be rebuilt, and the basement used for the storage of gasoline. The improvements are to cost $5,700. It has been leased to the Italian-American Automobile Co. for a term of years, and will be the headquarters of the Gramercy and Irving automobile clubs.

RECENT INCORPORATIONS

Saratoga Springs, N. Y.—Heath Dry Gas Co., capital stock, $100,000; to manufacture automobiles.

Columbus, O.—Swinehart Clincher Tire Rubber Co., capital stock increased from $100,000 to $200,000.

New York—Tremont Automobile Co., capital stock, $5,000; to deal in automobiles; incorporators, W. A. Greene and C. S. Russell.

New York—Wakeman Motor Co., capital stock, $100,000; incorporators, H. G. Wakeman and Haskell C. and John H. Billings.

Dover, Del.—Reading Gas Engine & Oil Co., capital stock, $200,000; to manufacture gas engines and gas motors and also engage in the refining of oil.

Brockton, Mass.—Brockton Motor Exchange Co., capital stock, $3,000; to deal in automobiles, etc.; incorporators, Oscar A. Campbell and Henry Lyon.

Brooklyn—Flatbush Automobile Co., capital stock, $5,000; to manufacture motors, engines, etc.; incorporators, Edward G. and Annie Applegate and Samuel E. Maires.

New York—P. A. Fogarty, Inc., capital stock, $10,000; to deal in automobiles and conduct a garage; incorporators, Patrick A. and William P. Fogarty and Joseph J. De Long.

Harrisburg, Pa.—Keystone Motor Car Co., capital stock $15,000; to deal in automobiles, etc.

Camden, N. J.—Yacht Gas Engine & Launch Co., capital stock $100,000; to design, build and repair vessels, yachts, launches, automobiles, etc.

Atlantic City, N. J.—C. W. Mathis Co., capital stock $100,000; to repair and store automobiles, etc.

Chicago—Washington Automobile Co., capital stock $10,000; to deal in automobiles, etc.

American Motor League

OFFICIAL BULLETIN

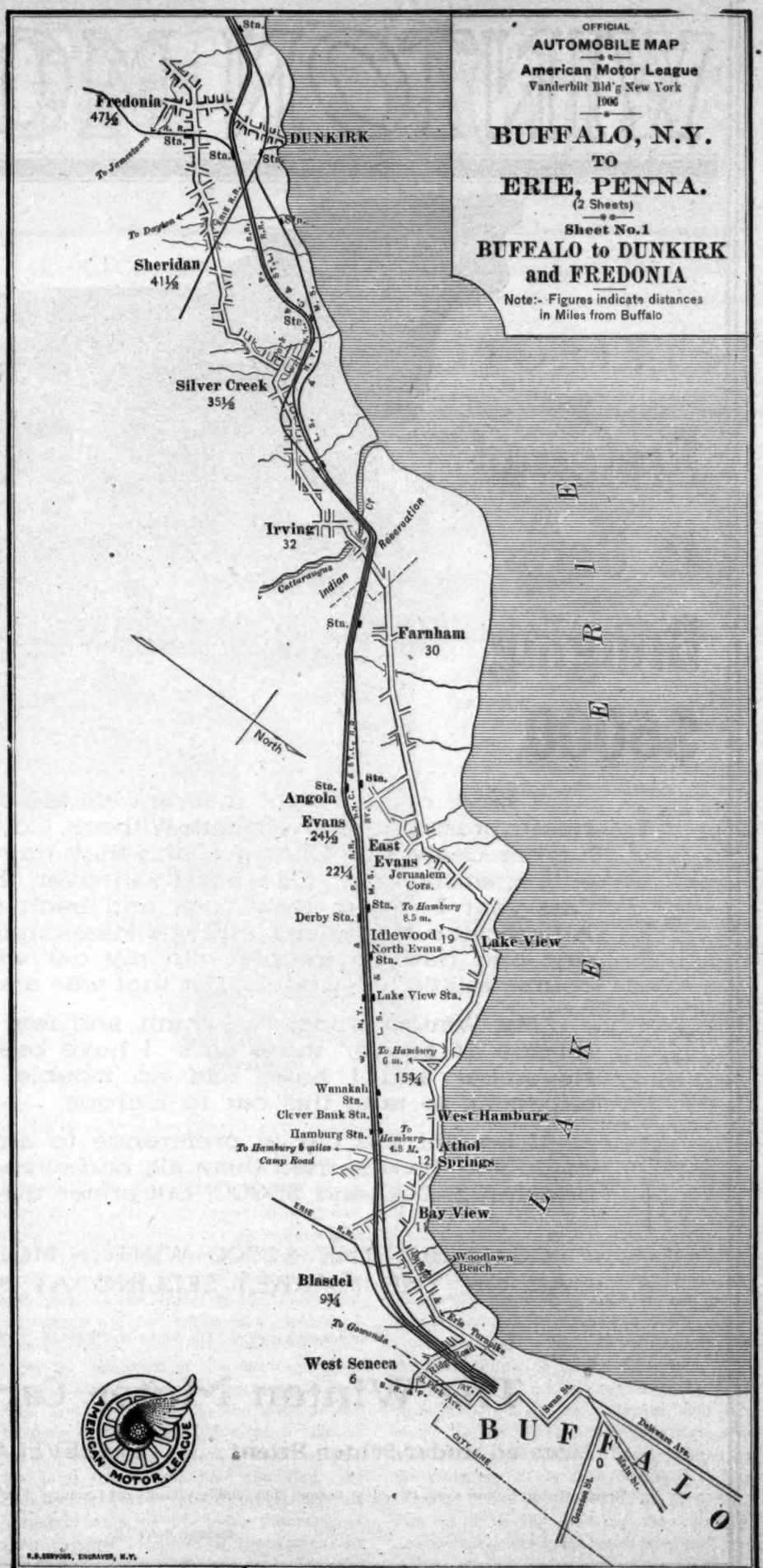
National Headquarters, Vanderbilt Building, New York

BUFFALO, N. Y., TO ERIE, PA.

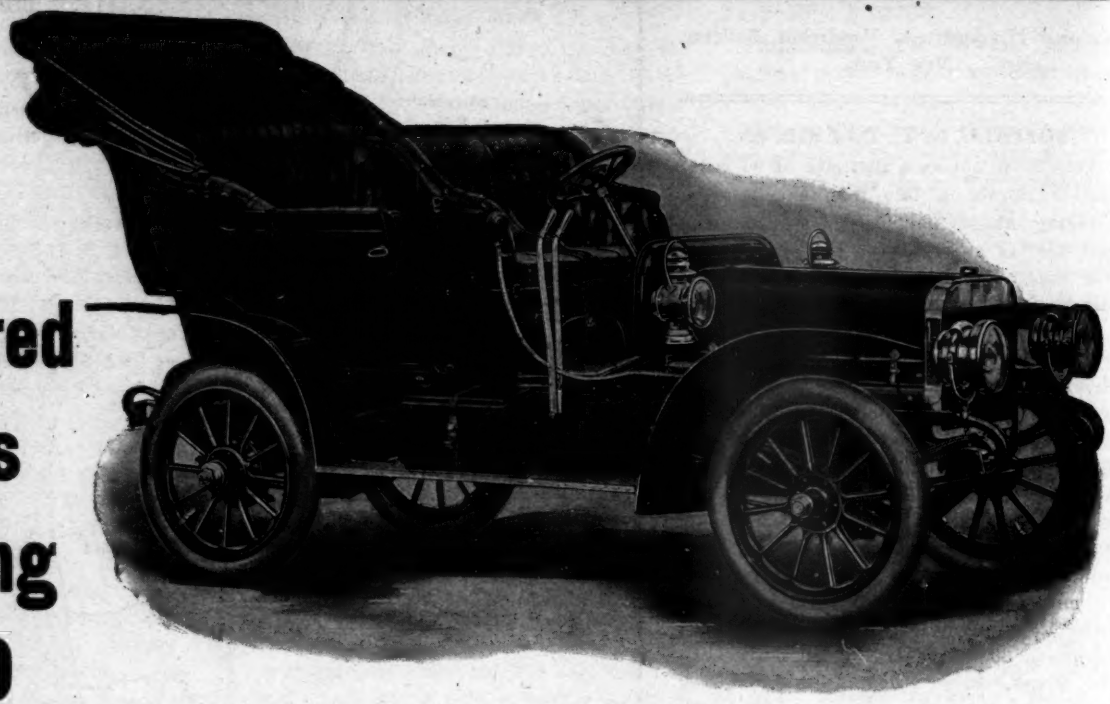
This route covers a distance of 94 miles and is shown in two map sheets, each covering about half the distance. The first half is shown here; the second half will appear next week. First half, Buffalo to Dunkirk and Fredonia:

Starting at the intersection of Main and Genesee streets, go south on Main street about seven blocks; turn left into Swan street and go thirteen blocks to Hamburg street; turn right and cross railroads to Elk street; follow Elk street, curving into Abbot road and thence via South Park avenue and Ridge road to Shore road, the Buffalo and Erie turnpike. Turn left and follow the shore road through Bay View, 11 miles; West Hamburgh, 13¼ miles; Lake View, 19 miles; Evans, 24½ miles; Farnham, 30 miles; Irving, 32 miles; Silver Creek, 35½ miles; Sheridan, 41½ miles, and Fredonia, 44 miles. To reach Dunkirk, turn right at Fredonia at the fountain and go northward, crossing railroads. See map. The distance from Main street, Fredonia, to Front street, Dunkirk, is about 3 miles.

Note: The street pavements of Buffalo are the best in the world and the run from that city to Erie is mainly over either grades and a good surface, especially in fair weather. The map here shown has been prepared with considerable care and the route is so clearly laid down that detailed directions will hardly be needed. This map, with many others, will be published in card form for the use of league members. With it will be printed a more complete description of the route, with reference to the best hotels, supply stations and repair shops. Similar maps are being made for other localities. The members send the information; the league makes the map. Route blanks and circular information, "How to describe a route," will be sent to any automobilist who will aid in preparing these maps. All motor car users and every friend of the automobile should join the A. M. L. No initiation fee; dues $2 a year. If you live on or near the line of an important or popular route, or in an important town from which the best routes should be mapped and shown write to the secretary. Send your name and address, plainly written, with 1 year's dues. Full information on request. Address American Motor League, Vanderbilt building, New York.



WINTON MODEL-K



Preferred to Cars Bringing $5000

"I have owned eight different Winton cars," writes Mr. Ed. Heath, president of the Heath-Witbeck Co., leading hardwood lumber dealers of Chicago, "and they have always given me entire satisfaction. One car I ran over the State of Texas. Last year I was in New York and back twice, all over the Adirondack Mountains, through Massachusetts and New Jersey, and had no trouble with my car whatever, except of course a little tire trouble, but that was a small account.

"My Winton Model K I think and feel gives me the best service of any of these cars. I have been running it since November and I have had no trouble with it, and I am expecting to take this car to Europe.

"I bought this car in preference to any other car that I could find, having tried them all, and even tried cars that are bringing $4000 and $5000, but prefer the Winton Model K."

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